

Railway Age

SECOND HALF OF 1918—No. 12

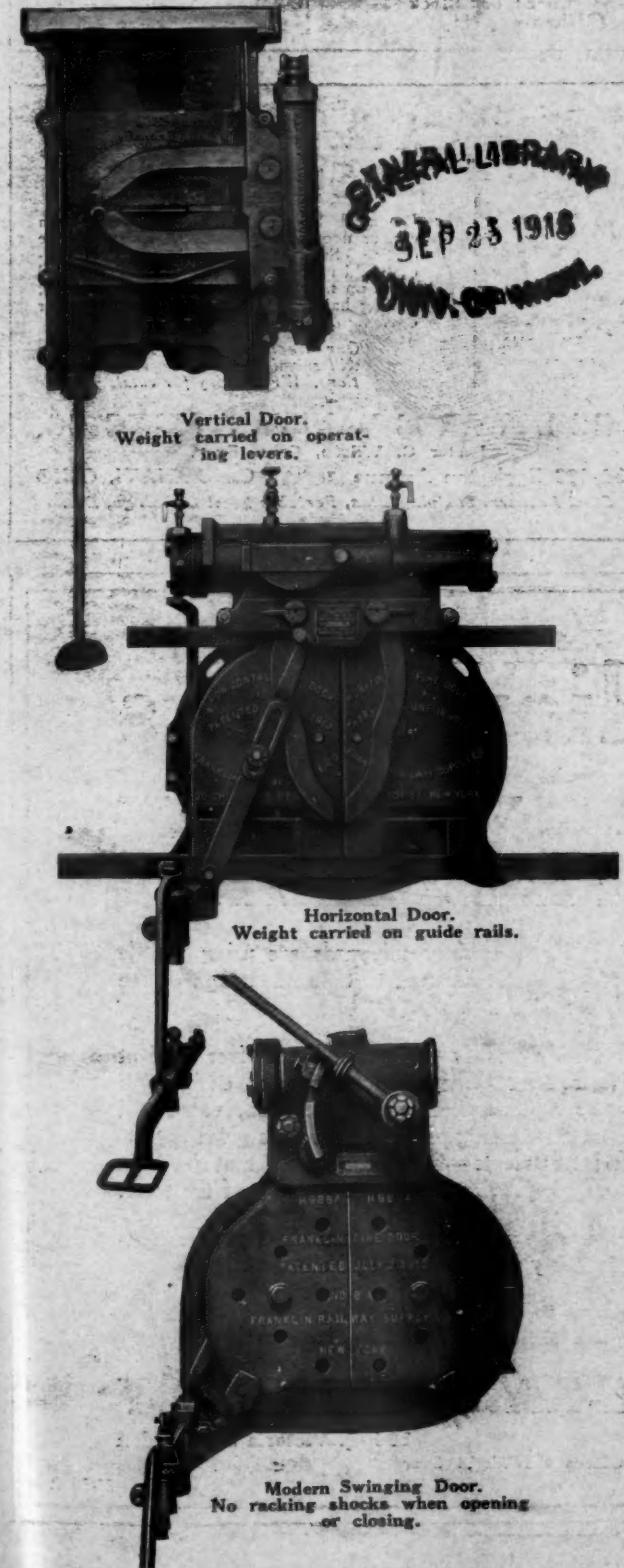
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Railway Age

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WE GUARANTEE that of this issue 7,550 copies were printed; that of these 7,550 copies 6,945 were mailed to regular paid subscribers, 73 were provided for counter and news company sales, 289 were mailed to advertisers, 133 were mailed to employees and correspondents, and 110 were provided for new subscriptions, samples, copies lost in the mail and office use; that the total copies printed this year to date were 338,642, an average of 8,907 copies a week.

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EDITORIAL

Railway Age

EDITORIAL

The twenty-sixth annual convention of the Traveling Engineers' Association, which was held in Chicago last week,

The Traveling Engineers' Convention

may truly be recorded as one of the most successful and enthusiastic meetings ever held by this association. The men came to Chicago for business; they came to learn how they could help the nation in winning the war. The attendance at the meeting was so large that the Olympic theatre was requisitioned, as the convention rooms at the hotel could not conveniently hold the crowd. Every session was well attended. The men were anxious to learn and to hear and absorb the ideas of the members and the speakers. The supplymen noted particularly, as the railroad men circulated through the exhibition hall, that they were there to familiarize themselves to the fullest extent with the latest development in the devices and the method of handling those with which they were unfamiliar. The spirit that pervaded the atmosphere of the convention hall during all the sessions was one of patriotism and service. Many brilliant talks were made, to which the meeting responded with enthusiasm. It is sincerely to be hoped that the spirit of this meeting will be carried back home and that it will be reflected in the spirit of the workers.

The Railroad Administration has decided to substitute table d'hôte for a la carte lunches and dinners on dining cars and will establish a price of \$1.00 for lunch

Table d'Hôte Meals on Dining Cars

and \$1.25 for dinner. In the early history of dining car service in this country the table d'hôte system prevailed. There has been much discussion since it was abandoned as to whether it or the a la carte system resulted in better service to the public and was more economical for the railways. The table d'hôte system has been used in England and on most of the railways of continental Europe, and, while the *Railway Age* has no information as to the financial results it has yielded, we have long believed, and have said in our columns, that it resulted in better service, as well as in lower prices to the public than did the a la carte service which has been in such general use on the railways of the United States. Prior to the war the traveler could get a good meal on a good train on almost any European railway for fifty cents to a dollar. The method usually followed in serving meals was to serve as many guests as could be accommodated in the car at a given time, each guest being given a slip of paper stating the time which he was to eat and the number of the table at which he was to sit. All the guests who came into the dining car at a given time had to finish together, at which time their places were taken by those who had been assigned to that time. Under this scheme each guest knew just when he would be served and when he must get through and there were none of those long lines of passengers waiting to get into the dining cars which recently have been so numerous on railway trains in the United States. In our opinion, after the table d'hôte system has been in use for awhile, a large majority of travelers will find that they like it better than the a la carte system because of its greater convenience and economy and because the food served will be, or ought to be,

better, while at the same time the railways will require less servants to serve meals and will waste less food. It is not to be expected, however, that the table d'hôte system will be introduced without causing much grumbling on the part of persons who have been used to a la carte service and who prefer it. The results of the change will be followed with much interest.

"The government of the United States feels that there is only one reply which it can make to the suggestion of the

Our Only Terms

"Unconditional Surrender"

Imperial Austro-Hungarian government. It has repeatedly and with entire candor stated the terms upon which the United States would consider peace and can and will entertain no proposal for a conference upon a matter concerning which it has made its position and purpose so plain." This, President Wilson's answer to the Austro-Hungarian note proposing an unofficial conference of belligerents, is the only answer that America could have given. Now is no time to talk peace nor will any other time in the future be proper to talk peace until the stain of Kaiserism is entirely eradicated from the earth. Our terms of peace are already announced in no unmistakable terms. To dicker about them now would be the most foolhardy thing that we could do. We have the German and the Austrian on the defensive. His morale is crumbling under Foch's repeated blows, and America with its mighty industrial and man power has hardly begun to strike. The morale of our own troops overseas has excited the admiration of our allies. Could we consistently have taken a single step that would have given them even the slightest suggestion that the worst is over and that the war would be settled by peace negotiations instead of by their own desperate efforts at the front? Certainly not. We are fighting this war now for good and all. It will no doubt take several more months to finish it, but even if it takes years, there will be no place for any suggestion, however remote, that might lead to its postponement for our grandchildren and great grandchildren to tackle once again. We have the Hun on the way to his defeat. We must press our advantage to the only ultimate conclusion—Unconditional Surrender—while the present opportunity is in our grasp.

The sale of the Orenstein-Arthur Koppel Company by the alien property custodian this week marks an episode of great importance in the railway supply field.

The Orenstein-Arthur Koppel Company

This company had little right on American soil. The American railway supply field is pre-eminent in its field and that a German owned and operated establishment should have had a successful career in such company was more or less of an anomaly. The Orenstein-Arthur Koppel Company was owned by the Arthur Koppel Aktiengesellschaft, a German corporation with headquarters in Berlin. It was incorporated in Pennsylvania about ten years ago and was one of several branches of the Berlin company, there being others in South America, Cuba, Mex-

ico, England, Africa and Russia. The American company, in short, was merely part of a net, but it was that part in a position to learn what was going on in its line in this country. It was in a most advantageous position to learn what the American railway supply industry was doing and to pass the information along to the parent company and with no good, one can bear in mind, to its American competitors—particularly in foreign trade. Since the outbreak of the war the company has had a most unsavory record. As the announcement of the sale pointed out, the company received many contracts from munition plants, steel mills and other concerns and thereby received valuable information about war work for France, England and later for ourselves, with which it certainly did no good. It also received contracts of its own—rumor has it that it kept its skirts clean of an allied stain—to use a word representing its own side of the matter—by communicating with the Hun authorities and thereby trying to effect the sinking of the ship on which the material was shipped. A glimpse into the future when we shall be going ahead to build up our foreign markets in railway supplies would easily show what a damaging influence an organization of this kind would have offered. Its transfer from 100 per cent German to 100 per cent American ownership is indeed a happy circumstance. The alien property custodian will similarly sell a number of other German owned concerns in other lines. There is not an American in any line of industry that will not wish him godspeed.

Going All the Way

RAILWAYS ARE DEVOTING more attention to the treatment of their locomotive water supplies today than ever before. More roads are constructing treating plants than at any previous time, while an even larger number of lines are making investigations to determine the manner and the extent to which improvements can be effected. This awakening has resulted from an increasing realization of the improvements in locomotive operation which can be attained in this way, and it has been spurred on by the necessity of adopting all practical means for increasing the productive output of each engine, since it is becoming evident that relatively limited relief will be secured through the addition of new power this year. Another factor contributing to this activity is the fact that results can be secured in a relatively short time and with a comparatively limited expenditure, an important consideration at present.

With the general interest in this subject now prevailing it is important that no serious mistake be made which will render ineffective the improvements being undertaken or jeopardize future developments along this line. As pointed out by John R. Leighty, in a letter to the editor in this issue, three features should be considered in every plant—design, operation and supervision. As regards design, the students of water treatment are divided into two distinct schools having radically different points of view. One group contends that the type of plant selected is of relatively little importance and that the proverbial "two barrels and a bucket" will suffice. The advocates of this idea believe that almost any plant properly operated and supervised will bring the desired results. Without depreciating the importance of proper attention to operation and supervision the other group argues that a thoroughly equipped plant designed to insure a complete treatment of the water at a particular station will yield results sufficiently better than the simpler plant to justify the increased expenditure.

There is no question but that even the simplest treating plant intelligently installed and operated will affect improve-

ments in bad water areas. It is also true that an elaborate plant carelessly or improperly operated and inadequately supervised will give no better if as good results as a makeshift plant properly handled. However, the neglect on the part of a road to give proper attention to the manner of operating a plant has no relation to the type of plant itself and there should be no excuse for neglect in this regard with any form of equipment. The most satisfactory plant should be the one complete in its details and then operated properly. One of the most serious handicaps which the water treating industry has suffered has been brought about by the belief that a complete treating plant, once installed would run itself. It is the failures resulting from this condition more than any other cause which have served to discredit water treatment and to create a prejudice against it on many roads which is only now being overcome.

At the present time, when so much attention is being given to the possibilities of water softening it is of the greatest importance that thorough studies be made of the conditions existing at each source of supply and that plants be designed which will result in the maximum efficiency at each station. No one type of plant or standard form of equipment is universally adaptable to all stations on a road or even on a single division. Each point requires individual analysis and design if the best results are to be secured. After equipment has been installed it is of equal importance that proper steps be taken to insure its correct operation and that sufficient supervision be exercised to insure that this be done. The roads which are securing most satisfactory results are the ones that have taken these precautions, while those which have attained little or no success will be found upon investigation, in almost every instance, to have neglected one or more of these essential conditions.

The Most Dangerous Period of the War

THE SOLDIERS OF THE ALLIED NATIONS on the western front, including those of the United States, recently have been winning victory after victory over those of the central powers, and have now driven them back almost where they were four years ago. The central powers, largely owing to this, no doubt, have started a new "peace offensive." Austria-Hungary has asked for a conference of representatives of all the countries engaged in the conflict. Germany has offered terms to Belgium.

In consequence of these developments it may appear to many persons that the triumphal end of the war is drawing near. On the contrary, the part of it we are now entering is the most dangerous to the allied cause since the United States became involved. It is so dangerous because the situation which has been created by the victories of the armies of the allies, and by the peace propaganda which has been begun by the enemy, may be misunderstood by the peoples of the United States and the other allied countries, and cause some relaxation of their military and industrial efforts, and especially their industrial efforts.

The truth is, that any relaxation of the efforts of the armies and peoples of the allies at this time might prove fatal in the long run to their cause. The war is far from won. While the central powers are being rapidly defeated on the western front, and may soon be expelled from France and Belgium, it is an important fact which many may overlook that Germany and Austria are still in possession of vast territories on the eastern front which they have conquered from Russia, Serbia and Roumania. These conquered territories in the east are so populous and have such vast resources that if Germany and Austria should be allowed to keep them, they would actually be stronger after the war than they were before it.

Therefore, the safety of the world requires that the war shall be continued until these powers have been compelled to disgorge their conquests, not only in Belgium and France, but also in the east. Probably there will have to be a long struggle before they will give up the conquered territories on the eastern front.

In the carrying on of this struggle the railway men of America have a part to perform which affords to them a great patriotic duty and opportunity. There are numerous ways in which they can do this duty and take advantage of this opportunity.

They should buy their full share of Liberty Bonds, and the recent vast advances in the wages of railway employees should result in their making much larger subscriptions to the next bond issue than they made to earlier ones.

Being diffused throughout the country and being an unusually intelligent class of citizens, the officers and employees of the railways can do a great work for their country by constantly presenting to their neighbors the need for prosecuting the war with unremitting energy until it has been completely won.

But the greatest part of the duty and the opportunity of railway officers and employees will be found by them very near at hand. They will find it in the performance of their regular work. The operation of the railways of the United States with the highest efficiency will become both more important and more difficult from now on. Unless past experience is no criterion, the demands made by traffic upon the facilities will soon become the heaviest ever known. At the same time, owing to the adverse conditions of the late fall and winter, the difficulties of operating the roads efficiently will soon be at their maximum. Everybody knows what occurred on the railways last winter. It is most improbable that the weather of next winter will be as severe as that of last winter was; but there is always severe weather in most of the United States during most of the winter. In these circumstances the duty of all classes of railway men is obvious.

In the first place, those who are directly concerned with the repair of locomotives, cars and tracks ought to put forth herculean efforts from now on to get these facilities in the best possible shape. Secondly, those who are directly concerned with train operation should begin to make efforts surpassing any they ever made to move all the traffic possible while the good weather lasts. Finally, all should be girding up their loins with the determination, when bad weather comes, to fight it and its effects with the same tireless courage and energy with which the soldiers of the United States are fighting the enemy in Europe.

As a matter of fact, they will be fighting the enemy as surely as the American soldiers on the other side are, and the effectiveness with which our soldiers on the other side can fight will depend largely on the way in which the railway men in this country do their work. Our soldiers cannot fight effectively unless they have ample provisions and munitions. Neither they nor the soldiers of our allies can or will have ample provisions and munitions unless the railways of the United States are operated with the greatest possible efficiency.

That the United States and its allies can win the war and win it completely there can no longer be any serious question. Whether they will win it decisively is another matter, and one which will be settled as much by the workers of America as by the soldiers of America. Of all the workers of America none can contribute more to the failure of the allied cause by slackening their efforts now or more to its early success by greatly intensifying them than the officers and employees of the railways of this country.

As to the patriotism of railway officers and employees there can be no doubt. Whether they fully appreciate their duty and their opportunity the world will be better able to judge after the roads have gone through next winter.

The Boston & Maine Reorganization

THE RAILROAD ADMINISTRATION has outlined a plan for the reorganization of the Boston & Maine which provides for a loan by the government of \$20,000,000 in addition to the \$10,000,000 already advanced by the government and for a consolidation of the leased lines with the Boston & Maine itself. The government's loan would be secured by a mortgage covering the combined properties and, since the laws of Massachusetts compel it, the outstanding debentures of the Boston & Maine would also be secured by this mortgage. Holders of stock of leased lines would surrender their stock for new preferred stock of the same par value and carrying varying rates of interest, based on the dividends which are now guaranteed on the leased line companies' stocks. This rate of interest for the next five years is to be 20 per cent lower than the rate now guaranteed but is to be restored to the full rate at the end of the five-year period. Thus, stockholders of the Fitchburg who are now guaranteed 5 per cent would, for the next four years, receive 4 per cent per year on their new Boston & Maine preferred, and the stockholders of the Connecticut River who are now receiving 10 per cent, would get 8 per cent on their new preferred. The government refuses to recognize any claim of the Hampden Railroad. Provision is also made for the issue of an additional \$12,000,000 preferred stock which may be used to pay off in part the \$20,000,000 to be advanced by the government.

It will be remembered that the plan which, after long and sometimes rather heated discussion and controversy, had been agreed to by the principal interests involved before government control became effective, provided for new preferred stock to bear interest at the same rate as the guaranteed interest on the leased line companies' stocks, for which new preferred was to be exchanged par for par for leased line companies' stocks. Under the old plan, the Boston & Maine would have had to itself raise a considerable amount of money through the sale of an issue of securities. This, under present conditions, would be practically an impossibility. The offer of the government, therefore, would appear to be a very fair one.

The management of the Boston & Maine has all along contended that an exchange of leased line companies' stock for Boston & Maine preferred was the only fair solution of the problem involved in reorganization and has insisted that the interest on this new preferred should be contingent on earnings and not a fixed charge. It would appear that the United States Railroad Administration after an unbiased study of the situation has fully upheld the position taken by the receiver, James H. Hustis, and the interests which have been working with him for a sound reorganization. The government, of course, could go further in bringing pressure to bear on leased line stockholders than could the reorganization committee and also circumstances have been such as to somewhat soften the mood of the reluctant leased line stockholders.

There is a provision in the federal reorganization plan which forbids the payment of dividends by the Boston & Maine common stock during the next five years.

Under the present plan, the Boston & Maine will be enabled to pay off back interest, to make such additions and betterments as are imperatively necessary for the economical operation of the property and, with ordinarily good luck, it ought to be able to earn and put back into the property during the next five years sufficient to form the basis of a greatly improved credit for the company. Furthermore, the holders of Boston & Maine funded debt will now, under the present plan, have their bonds secured by a mortgage on the consolidated Boston & Maine system. This is a quite necessary part of the plan if possible serious loss to savings banks

in Massachusetts is to be avoided. The Boston & Maine debentures are held in quite large quantities by savings banks and it is essential for the credit of the Boston & Maine, as well as for the general investment situation in New England, that nothing should be done which would impair the savings banks' investments in the Boston & Maine. The placing of these debentures in the security of a mortgage should greatly strengthen their market value and correspondingly benefit savings banks.

Union Pacific

ROUGHLY, about one-fifth of the total income of the Union Pacific comes from its banking operations and the other four-fifths from the operation of the 7,987 miles of railroad which makes up the Union Pacific system. Changes in tax laws and other considerations have led to a change in the method which the Union Pacific used in stating its income account and in dealing with the profit and loss account and balance sheet items. In 1917, total income available for in-



The Union Pacific

terest and dividends amounted to \$55,529,000, comparing with \$57,081,000 income in 1916. Interest charges call for approximately \$13,900,000 in each year and there was left, therefore, net income of \$41,536,000 in 1917 and \$43,183,000 in 1916. In 1917, the Union Pacific paid 4 per cent on its preferred and 10 per cent on the common stock, calling for \$26,211,000, and the entire remainder, with the exception of a few thousand dollars for sinking funds, was appropriated for additions and betterments. In 1916, the company paid 4 per cent on its preferred and 8 per cent on its common and appropriated \$4,367,000 for additions and betterments, leaving, after payment of sinking funds, \$17,039,000 to be carried to profit and loss.

At the end of the calendar year 1916, the Union Pacific

had a credit balance to profit and loss of \$138,740,000 and, in addition, there was a total "appropriated" surplus of \$41,328,000, of which \$35,418,000 was a reserve for depreciation of securities and \$5,450,000 appropriations for additions and betterments.

As already explained, the company carried nothing over from the income account of the calendar year 1917 to the credit of profit and loss, but during that year charged against this account \$14,582,000 additional reserve for depreciation of securities. The Union Pacific owns Baltimore & Ohio common and preferred, Chicago & Alton preferred, Chicago & North Western common, Chicago, Milwaukee & St. Paul preferred, Illinois Central stock, New York Central stock and Railroad Security Companies' (a holding company for Illinois Central stock) common and preferred to a total par amount of \$70,932,000. The company also owns bonds and notes of other railroad companies with a total par value of \$121,413,000. The company carries on its balance sheet the stocks just mentioned at a valuation of \$90,447,000 and the bonds at a valuation of \$114,130,000. The current quotations for the stocks would put a valuation of about \$50,484,000 on them, and for the bonds and notes a valuation of about \$106,708,000. With the appropriation from income for depreciation of securities owned this year, the Union Pacific now has a reserve for this purpose of \$50,000,000. This would appear to be an ample reserve, certainly for the investments in other than affiliated companies. It is not possible to make any accurate valuation of the investment in affiliated companies, although it is presumed to be carried at a very conservative figure. This figure at the end of 1917 was \$64,156,000 which included advances to affiliated companies as well as stocks and bonds owned.

At the end of the year the company had on hand \$6,742,000 cash, \$6,245,000 Liberty Bonds, and no time de-



posits. At the end of 1916, the company had \$17,170,000 cash, no Liberty Bonds and \$11,000,000 time deposits.

Except for minor readjustments due to the exchange of outstanding bonds for other bonds, there was no change in the amount of stock or bonds outstanding. The Union Pacific has \$222,293,000 common stock \$99,543,000 preferred stock, and \$333,099,000 par value of bonds outstanding in the hands of the public.

In 1917, the company spent \$1,005,000 for extensions and branches, \$13,729,000 for additions and betterments to road and structures, and \$7,540,000 for additions to equipment.

To turn now to the operation of the property as a railroad system. Total operating revenues amounted to \$130,102,000, an increase of 13 per cent over the revenues of 1916. Freight revenues amounted to \$93,348,000, an increase of 11.1 per cent, and passenger revenues to \$25,207,000, an increase of 25.5 per cent. Operating expenses showed a large increase, the total expenses in 1917 being \$77,295,000 or an increase of 21.3 per cent. The increase in expenses, however, was less than half as great proportionately as the increase in taxes. The total taxes, including federal, state and county, war and excess profits, amounted to \$8,452,000 in 1917, an increase over 1916 of 49.5 per cent.

Maintenance of way in 1917 cost \$15,348,000, or 6.5 per

cent more than in 1916. The Union Pacific spent over \$400,000 for the employment of special watchmen in guarding bridges and tunnels in 1917 that probably would not have been required except as a special measure in war time. There was also an increase of \$632,000 in the cost of maintenance of buildings and structures, bringing the total on this account up to \$1,945,000. A considerable part of this maintenance expense was caused by replacement work in connection with addition and betterment work. The annual report gives a long list of engine houses, shop buildings, turntables, water stations, fuel stations, etc., which were built; some of them replacing lighter structures and, therefore, carrying a charge to maintenance as well as to additions and betterments. The list of engine houses is indicative of the character of the work. New 96-ft. stall brick engine houses were built at Marysville, Ellis, Kansas City, Kans., Grand Island, Neb., and Pocatello, Idaho. The engine house at Ellis was a 14-stall structure replacing an old 14-stall house, and the one at Kansas City a 35-stall structure replacing one of 19 stalls.

Transportation expenses in 1917 amounted to \$37,728,000, an increase of \$8,526,000 over 1916. Fuel and wages, but more especially fuel, were the items which account for this large increase. The average cost of coal per ton in 1917 was \$2.41 as against \$1.97 in 1916, and the cost per gallon of fuel oil was 2.02 cents in 1917 as against 1.84 cents in 1916. The miles run to a ton of coal in 1917 averaged 10.23 and in 1916 10.61. Yard expenses increased even more than train expenses. This was due to the fact that prior to 1917 the Union Pacific from Omaha, Neb., to Ogden, Utah, was operated as two grand divisions with, of course, each division having a certain number of districts. This was changed and the road is now being operated, and was in 1917, by divisions, these divisions varying from 100 to 200 miles in length. This change in operating method made, it is believed, a considerable increase in yard work and, therefore, yard expenses, although, of course, train expenses may have been or will be in the future reduced more than enough to offset the additional yard expenses.

Although the Union Pacific was at no time in 1917 in as badly congested a state as some of the eastern trunk lines, there were times when it was necessary to make effective rules which amounted to embargoes.

Maintenance of equipment expenses amounted to \$15,813,000, an increase over 1916 of \$2,641,000. The following table shows the average cost of repairs, excluding overhead depreciation and retirements, per unit of equipment:

	1917	1916
Locomotives	\$4,604	\$3,438
Passenger train cars.....	899	798
Freight train cars.....	86	74

At the end of 1917 36.35 per cent of the locomotives were in thorough order, 52.08 per cent in good order, 4.42 per cent required repairs, and 7.15 per cent were in shop. At the end of 1916 34.68 per cent were in thorough order, 40.80 per cent in good order, 15.75 per cent required repairs, and 8.77 per cent were in shop. In other words, the Union Pacific began the year 1918 in much better shape in so far as power was concerned than it entered 1917.

The table shows the principal figures for 1917 and 1916.

	1917	1916
Average mileage operated.....	7,987	7,933
Freight revenue	\$93,347,832	\$84,012,145
Passenger revenue	25,207,229	20,992,807
Total operating revenues.....	130,101,864	114,412,607
Maintenance of way and structures.....	15,348,222	14,405,828
Maintenance of equipment.....	15,812,795	13,171,653
Traffic expenses	2,355,943	2,176,939
Transportation expenses	37,728,206	29,202,448
General expenses	4,035,470	3,225,561
Total operating expenses.....	77,295,158	63,704,393
Taxes	8,451,691	5,651,544
Operating income	44,355,015	45,056,670
Gross income	55,529,134	57,080,808
Net income	41,536,500	43,183,409
Dividends	26,210,900	21,765,068
Appropriations for additions and betterments.....	15,313,973	4,367,075
Sinking funds	11,627	11,623
Surplus	17,039,643	

Letters to the Editor

One Phase of Boiler Water Treatment

KANSAS CITY, Mo.

TO THE EDITOR:

The development of methods for the treatment of boiler water for locomotive use has been from the outside in, and not from the inside out. This, however, is like many other things in the development of present day railroad practices. Whatever may be the reason, it is a fact that some of the fundamental things that make the present operating methods possible have been practically forced upon the railroads by outside pressure. We could not have the heavy freight trains of today without the automatic coupler invented by a farmer, or the air brake, invented by a non-railroad man. So with the treatment of boiler water; not many railroads today would be treating their water at all, if it were not for the urging of the commercial side of the question. If it were not for the profit to be had by selling some patented or otherwise protected material or device not one gallon of water would be treated for every hundred at present.

Of course it is legitimate and proper that, if a man can save a road money he should share in the profits, but it does not reflect the most credit on the railroad fraternity when we wait until some outside concern forces a good thing on our attention. I do not presume to say that the materials and devices put forward commercially are not worthy, but I intend only to call attention to the fact that while the treatment of boiler water is recognized by railroad officers as being good economy, they seem to be content to allow commercialism to make them believe in it to the extent of doing it. Most, if not all, concerns engaged in selling devices and materials maintain competent, efficient, technical staffs, and render the necessary service to make an installation to fit the conditions in each case, but is it good practice to depend on this service alone? Is not the conclusion likely to be somewhat prejudicial?

There are three distinct steps in the development of water treatment on every railroad; design and installation of plant, operation and supervision, and the most important of these is supervision. The need for treatment proves itself by the length of life of flues and fireboxes and by the "leaking" and "foaming" troubles. Whether it will pay to treat the water requires a water survey.

In considering the matter of operation, the whole question can be summed up by saying that almost any kind of a plant will do the work if properly operated, but no plant will do it if not. To get proper operation requires supervision.

The treating plant is the servant of three departments on most roads, the engineering, transportation and mechanical. It doesn't make any difference what the organization may be, or how much harmony may exist between departments, for the fact still remains that these three branches of the service are involved. The individuals in each branch have been trained to think along lines pertaining to their branches. A man may be broad, honest, fair and anxious to co-operate, but still he is an engineering, transportation or mechanical man, and has the kind of thinker that is developed by his particular line of work.

Somewhere in the organization these different interests center, and there should be the supervision. It may be the division superintendent, the general superintendent, the general manager, the operating vice-president, or the president. It is probably better to go a little higher up than the superintendent when fixing the responsibility for the over-

head supervision and checking, so as to get more breadth and uniformity over a large system. This supervision should include checks of the treatment at short intervals by analysis, at some central point, of the treated and untreated water, and a comparison of the amount treated between checking periods with the amount of chemicals used. Engine performance reports should be compared with the analyses, and the condition of the boilers and fireboxes watched in the same connection. There can be no assurance of proper results otherwise. To err is human and to advertise one's own deficiencies is un-human; therefore, do not depend on the operator reporting on his own work.

JOHN R. LEIGHTY,
Engineer Maintenance of Way, Missouri Pacific.

The Virginian Railway Brake Tests

NEW YORK.

TO THE EDITOR:

In his communication in your issue of August 23, criticising the government schedule and your report of the Virginian brake tests, Mr. Humphrey, vice-president of the Westinghouse Air Brake Company, evidently overlooked the opening paragraph of the report in your issue of July 26. It reads as follows:

"This train was run as the last of a long series of tests including both rack and road tests which have been conducted by the Bureau of Safety of the Interstate Commerce Commission, to determine the practicability of the Automatic Straight Air brake system."

This statement makes clear that the tests were not "confined to a single trip down a hill"; these government tests actually involved nearly 30,000 car and train tests divided approximately half and half between rack and road, requiring more than three months for completion.

Mr. Humphrey refers to a few of the many inventors who through many years have striven to provide the railroads with a brake having the functions now accomplished by the Automatic Straight Air Brake:

- (1) Rapid serial action in service applications and in quick release.
- (2) The maintenance of uniform and constant brake cylinder pressure, irrespective of piston travel or cylinder leakage. The cylinder is fed from the brake pipe, the pressure in which in turn is maintained by the compensating valve while the brake valve is in lap position.
- (3) Graduated release, permitting a variation of brake cylinder pressure at the will of the engineman.
- (4) Quick release when desired.
- (5) Emergency applications of the brake available at any time during or after any service application, and an automatic emergency application on full depletion of train pipe pressure.

It is true that these features have not heretofore been successfully incorporated in any practical brake. As Mr. Humphrey says, the others who so attempted all fell short, but this was no bar to the Automatic Straight Air Brake, and we are quite satisfied to leave to the government report the decision as to whether or not it satisfactorily performs all of these functions.

Mr. Humphrey raises the question as to why two 8½-in. cross compound compressors were used on the locomotive with which the tests were conducted. The tonnage locomotives of the Virginian Railway are all regularly equipped with two 8½-in. cross compound compressors for handling trains of 60 to 85 cars. The fact that a 100-car test was to be conducted over a section of road normally limited, as we were officially told, by the demands of the brakes and the air supply to a maximum of 85 cars was ample justification for replacing the compressors, which were badly in need of repair, with others which were in good condition, merely as a matter of common prudence.

There is one other thing concerning the two 8½-in. cross compound compressors which might well be mentioned. Having initially equipped the 100 test cars with trainographs it was thought desirable to take them as a 100-car train, down Kellysville Hill, so as to obtain a record of the conditions before removing the Westinghouse K-2 triples. Not

withstanding that all of the Virginian tonnage locomotives were equipped with two 8½-in. cross compound compressors, the railroad management stated that it had been officially notified by the Westinghouse Air Brake Company that it would not be responsible for trains of K-2 triples of more than 85 cars. We were advised that if we desired to take 100 cars down the hill it would be necessary to use two locomotives with four cross compound compressors.

We experienced no difficulty whatever in supplying the 100 A. S. A. cars with air with the single locomotive and can see no reason why 125 to 150 A. S. A. cars would not be safe on this grade with one locomotive, since the A. S. A. triple uses only 50 per cent of the air required for the K-2 triple.

Mr. Humphrey raises a question as to the events of the 100-car tests, which may be misleading and should be made clear. I quote the following from his communication:

"The results obtained were quite natural, for the reason that the physical conditions which limit the flow of air through piping, the time element which is governed by the laws of nature, and the mechanical limitations (not to speak of the cost of apparatus) are such as to prohibit the incorporation of these features in long train service without the necessarily unavoidable break-in-twos and stalling of trains such as occurred."

"If my understanding of the report is correct, there were three break-in-twos going down the grade between Princeton and Rich Creek and two stalls, over a distance of 15 miles, and another break-in-two between Roanoke and Victoria, to say nothing of the additional break-in-twos that occurred east of Victoria. . . . and while many of the aforesaid features were attractive and spectacular in test rack demonstrations, they developed the same lack of flexibility and successful performance when placed in service as were demonstrated by the number of break-in-twos and stalls that took place in the tests mentioned."

This all refers to the graduated release function of the A. S. A. brake and is beside the facts, as shown by the government records of what actually happened, and the effective manner in which this function of the brake performed throughout the tests. There was only one break-in-two whilst the train was being operated in graduated release, and this was at eight miles per hour, due to knuckles slipping past, because of a drawbar carrier iron having come down.

The Virginian Railway freight train delay reports plainly show that the physical factors to which Mr. Humphrey makes reference do, as he states, impose a practical limitation on results in trains of 65 cars and upwards equipped with the other types of brake. No progress in air brake development could be expected so long as old principles of brake operation were adhered to. It required a departure from them in order to bring about the improvement for which every railroad man having regard for the safety of passengers, employees and equipment was looking.

The other break-in-twos took place in portions of the train being operated in quick release and were the ordinary every day break-in-twos, except that there was no resulting damage, which was remarkable.

The one break-in-two east of Victoria (instead of additional break-in-twos to which Mr. Humphrey refers) while fully explained in your article deserves further attention. The head end of the train had dropped over a summit, and the engineman made a small brake pipe reduction; in releasing, through an error in judgment, the brake valve was held in release only nine seconds, the time being accurately recorded on the chronograph record. We cannot believe that any practical air brake man would charge this break-in-two, whilst the train was in quick release, to any special system of brakes.

The break-in-two near New River bridge whilst the train was in quick release was the result of a knuckle pin with an old break. The brakes were not applied. The break-in-two near Rich Creek was with all brakes in quick release. The break-in-two near mile post 129, was while the train was in quick release. No brakes were applied.

This covers all of the break-in-twos in a 340-mile run with a train of 103 cars. These statements are from the actual records. Inasmuch as the 103 cars were started from Ingleside without a pusher engine, contrary to Virginian

practice with smaller trains, it is surprising that more damage was not done to knuckles and pins, and that there were not more partings.

It is well known that break-in-twos at the same slow speeds with a 100-car Westinghouse train (an ever-present terror for trainmen and operating officers) frequently tear the train in several pieces, even if they do not buckle the train, and throw part of it over on the adjacent tracks in the face of approaching trains.

The tests would hardly have been complete without these break-in-twos. Although they were not planned in the program, the results were welcomed. They fully demonstrated that the A. S. A. brake will save many millions of dollars annually to the railroads and eventually to the taxpayers through break-in-twos alone. We are glad to have this important feature of the brake brought fully before your readers. The break-in-twos occurred at various speeds, and under varying braking conditions,—graduated release, quick release, brakes applied and no brakes applied,—without a perceptible shock, and demonstrated to the satisfaction of all those present that the horror of accidents resulting from emergency applications of the present-day brakes on long trains from burst hose or from any other cause, disappears, with the introduction of the A. S. A. brake. The train in every case acted as a unit instead of the single cars as separate units. The A. S. A. brake did away with the internal collisions which are today so disastrous.

As to the three "stalls" referred to by Mr. Humphrey, the engineman, who had no training with the brake, and who had never handled a train of 100 cars down the mountain, was simply over-cautious. His previous experience with shorter trains had been such that he could not at first understand how, in graduated release, with a slight brake pipe reduction he could hold 7,500 tons down Kellysville Hill. After he had made a few brake pipe reductions he "saw light," and from that time on he handled the 103 cars of 7,500 tons in graduated release with the same ease as though it had been a five-car passenger train.

It is of interest that on Kellysville Hill, with two 8½-in. cross compound compressors, 60 to 85 cars, and Westinghouse brakes, "stalls" or inability to release the rear end, resulting in the breaking of the train into two and three pieces, are of almost daily occurrence and are a matter of record. For instance, during the month of April, 1918, 65 cars was the length of the average train down Kellysville Hill and even with these short trains eight per cent broke into two or three pieces.

I trust your readers will understand that there had been no private road tests in advance of the government tests. The first time the 100 A. S. A. cars were coupled together they were started down the 12-mile grade with the full confidence of every one present. We all knew that the worst that could happen was that during the first few brake pipe reductions the engineer might use too much air and stall the train. It could not run away; the A. S. A. brake is "safety first."

It will, perhaps, be of interest to your readers to know that these government A. S. A. brake tests furnished the first opportunity in air brake history to obtain automatically such records from every car in every train of the rack and road tests, standing and running, as to permit of establishing the variables between the different series of tests, rack and road, standing and running. From these records it was found that the differences in results were negligible.

We understand that two of the main purposes of the government report will be to dispose of the questions as to whether, in the first place, the A. S. A. brakes of themselves furnish a safe train control, and, in the second place, whether they interchange with present-day equipment.

H. I. MILLER,
President Automatic Straight Air Brake Co.

Enforcing the Caution Signal for Automobiles

JACKSONVILLE, Fla.

TO THE EDITOR:

I would like to offer a remedy for a great and increasing evil, the danger to passengers in railroad trains, and to people on the highways, from the reckless behavior of drivers of automobiles. I am an engineer on the Seaboard Air line, and on two occasions recently we have had smash-ups caused by the racing of automobiles with trains at high speed on parallel highways, the driver finding out too late that the road turned and crossed the railroad. In both cases the driver of the automobile ran into the side of the train, resulting fatally to persons in his car.

In another case recently I saw a car approaching a crossing at high speed, and I sounded the whistle long and loud; but the motorist became confused and stopped his car on the track; our speed, however, had been checked, so that he escaped. Men in automobiles foolishly assume that they can estimate the speed of a train from a point in front of it, which is out of the question.

I propose to make it impossible for people to approach a railroad track at high speed. Put up a cautionary sign about 80 rods back from the track, and then make three humps in the road. I would make each of the three ridges of such height as to enforce a predetermined rate of speed. Make experiments, if necessary, and have the first hump such that a car can pass over it at 20 miles an hour, without damage; the next one at such height as to impose a limit of 10 miles an hour, and the third, or last one, about 50 ft. from the crossing, to compel a speed of not over 6 miles an hour. Make sure that the reckless driver cannot get over it, at a speed higher than that, without loosening his teeth.

Gates are of very little value. They are run through frequently. Something must be done. Numerous motorists take chances at crossings just for the excitement there is in it; then they stop and look at the train as it goes by. Excitement is caused in the engine cab also; for I do not wish to hurt any one, nor do I want to tear up the brakes by making emergency applications. People on highways should be made to understand that they cannot safely estimate the speed of a train from a distance; especially in the night. An electric headlight is very deceptive in the matter of distance. A dim headlight is always liable to seem farther away than it is.

WM. BAILEY THOMAS.

INTENSIVE PASSENGER TRAFFIC IN ENGLAND.—During the recent bank holiday week-end, the British railways probably handled a more intensive passenger traffic than they have ever carried at any previous period of their history. In the absence of detailed figures it is impossible to state whether a larger number of passengers may not have been carried at some other holiday season, but on no previous occasion have so many persons been conveyed in so few trains, with the result that the average train and car loading to and from the principal resorts was most unusually high. On the Saturday before bank holiday, to give only two instances, there were passengers for the 5:30 a. m. from Waterloo to the coast who had been waiting at the station since the previous night, while outside the London Bridge terminus of the Brighton Railway there were at 7 a. m. already a queue of would-be passengers four or five deep, whose length was estimated at half a mile. These conditions are, of course, abnormal, but the combined effects of reduced train service and the tendency of the general public to travel in spite of restrictions, plus the large number of naval and military passengers, has been to bring average train-loading up to considerably more than the pre-war standard.—*Railway Gazette, London.*

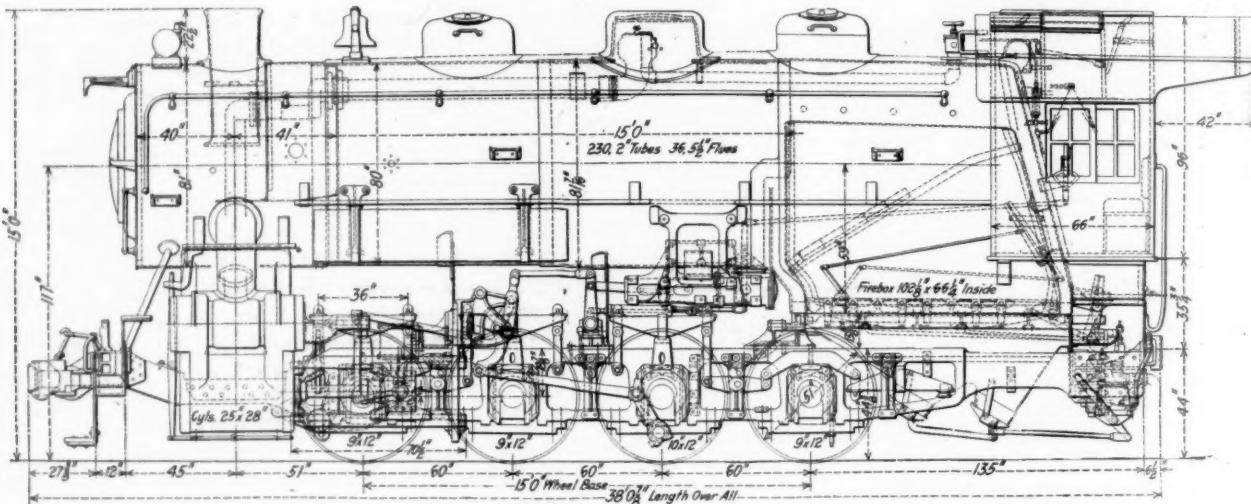
The First Standard 0-8-0 Type Switching Locomotive

Built by the American Locomotive Company; Total Weight
214,000 lb., Tractive Effort 55,000 lb.

THE FIRST OF THE STANDARD switching locomotives designed by the United States Railroad Administration has been recently completed at the Pittsburgh works of the American Locomotive Company. The locomotive is of the 0-8-0 type, of which 150 have been ordered for this year's production, to be distributed among 17 different rail-

roads. with a horizontal mudring and does not include a combustion chamber.

The dome is located on the second barrel course. It is 32 in. in diameter and the throttle valve is placed well forward to permit the boiler to be entered without the necessity for removing the throttle. The throttle rigging is of

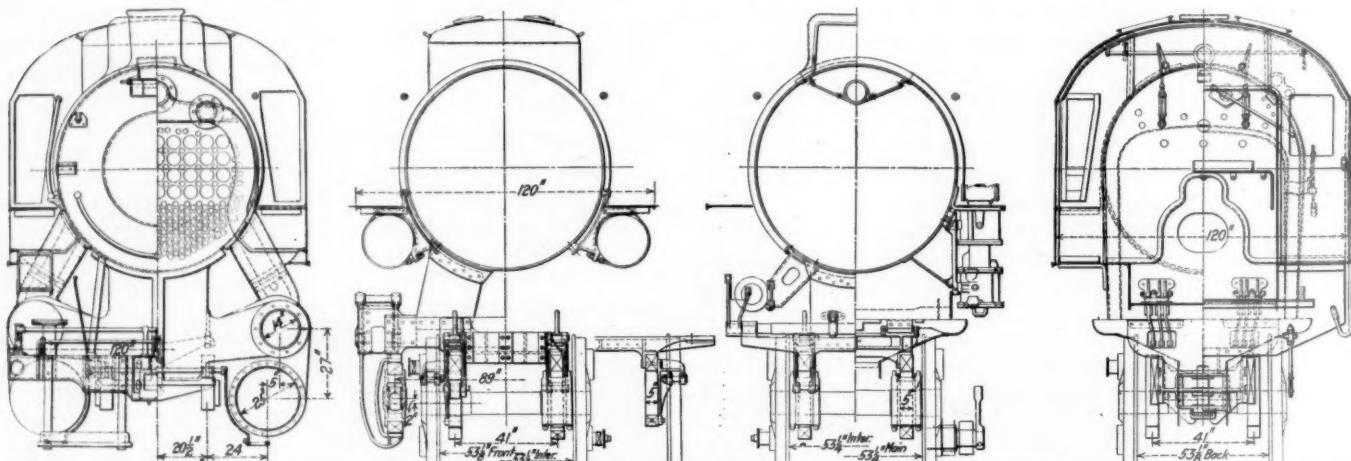


The United States Railroad Administration Standard 0-8-0 Type Locomotive

roads. These engines are designed on the basis of 55,000 lb. axle load and have a total weight of 214,000 lb. The driving wheels are 51 in. in diameter and the cylinders 25 in. in diameter by 28 in. stroke. With 175 lb. boiler pressure, the tractive effort is 55,000 lb.

The ratios indicate that for the service intended, the loco-

the chambers inside connected type, the stem extending through a gland on the back head, located $8\frac{3}{4}$ in. to the right of the vertical center line. The boiler is fitted with a Security brick arch, Type A superheater and Franklin fire-door. The main frames are each cast in one piece and are 5 in. wide throughout, except for the slab section at the rear end.

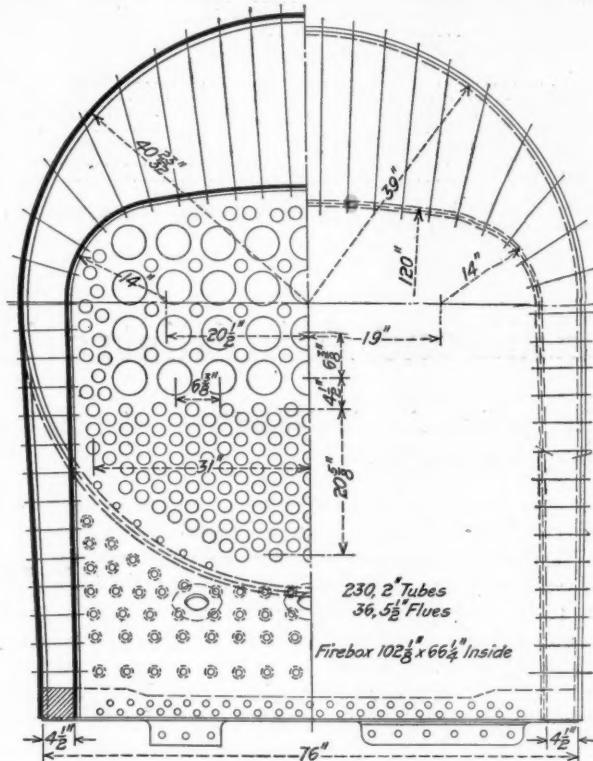


Cross Sections of the Standard Eight-Wheel Switcher

motives have ample boiler capacity. The boiler is of the straight top type with a telescopic barrel, the outside diameter of the first ring being 80 in. There are 230 two-inch tubes, laid out with $\frac{3}{4}$ -in. tube sheet spacing and $36\frac{5}{8}$ in. flues with $\frac{7}{8}$ -in. tube sheet bridges. The tubes and flues are 15 ft. long over the sheets. The firebox is designed

Here the width is reduced to $2\frac{1}{2}$ in., with a depth of $13\frac{1}{2}$ in., this section being increased for 30 in. at the extreme rear end where the deck plate is bolted to the frame, to 3 in. in width by 18 in. in depth. The upper rail is $6\frac{3}{4}$ in. deep over the pedestals and $5\frac{3}{8}$ in. deep at the smallest section between the pedestals. The lower rail is $4\frac{3}{8}$ in. in depth

over the binders and $3\frac{1}{8}$ in. at the minimum section. Under the cylinders the section is increased to $9\frac{1}{8}$ in. deep. There is no front deck casting; the bumper casting is attached



Half Sections Through the Firebox Showing the Tube Sheet Layout

directly to the front end of the frame rails by means of 1-in. flanged angle plates.

The details of the running gear follow very closely in design those of the standard Mikado type locomotives, descriptions of which have already been published.* The piston is of the single plate, dished section type, the specifications calling for either cast or rolled steel. The bull ring is of gun iron, riveted in place on the steel piston and fitted with

able in detail with that used on the light Mikado type locomotive. Paxton-Mitchell metallic packing is used for both valve stems and piston rods.

Steam is distributed by a 14-in. piston valve, which is interchangeable with that used on both the light and heavy Mikado type locomotives, as are also the valve chamber heads. The engines are fitted with the Baker valve motion and the Ragonnet power reverse gear.

Three standard tenders have been designed to meet the requirements of all the standard types of locomotives. These have 8,000 gal. 10,000 gal. and 12,000 gal. capacity respectively. The 8,000-gal. tender will be used with both the six and eight-wheel switching type locomotives. The tank is of the rectangular type ordinarily used with road engines and is carried on a Commonwealth cast steel frame. It is 27 ft. long by 10 ft. wide by 5 ft. 1 in. high and has a coal capacity of 16 tons. The tank is fitted with the Locomotive Stoker Company's coal pusher. The four-wheel trucks are built up with cast steel side frames and bolsters, and are fitted with 33-in. cast steel wheels mounted on axles having 6-in. by 11-in. journals. The trucks have a wheel base of 5 ft. 10 in. and are spaced 15 ft. 10 in. between centers.

Among the more important specialties are three 3-in. Consolidated safety valves, Ashton steam gages, Murden 2-in. flanged blow-off cocks, Sargent quick acting blower valve with Barco smoke box fitting, Hancock No. 11 nonlifting injectors, Nathan five-feed lubricators, Franklin flexible pipe couplings and the Radial buffer and Unit Safety drawbar between the engine and tender.

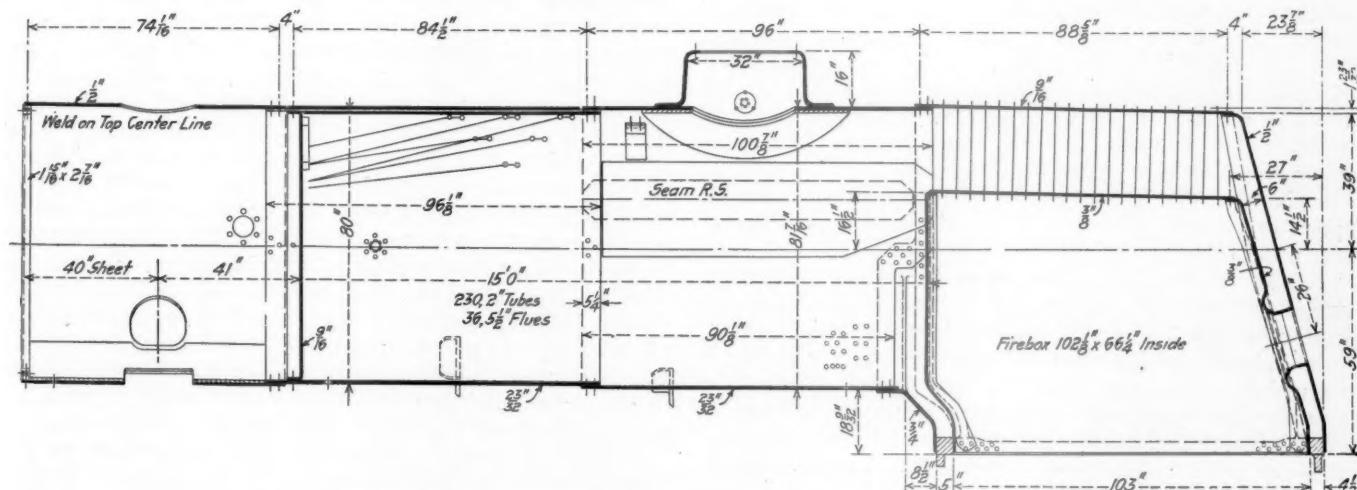
The principle data and dimensions are as follows:

General Data

Gage	4 ft. 8 1/4 in.
Service	Switching
Fuel	Bit, coal
Tractive effort	55,000 lb.
Weight in working order	214,000 lb.
Weight on drivers	214,000 lb.
Weight of engine and tender in working order	381,900 lb.
Wheel base, driving	15 ft.
Wheel base, total	15 ft.
Wheel base, engine and tender	52 ft. 10 1/4 in.

Ratios

Weight on drivers \div tractive effort	3.9
Total weight \div tractive effort	3.9
Tractive effort \times diam. drivers \div equivalent heating surface* ¹	700.0
Equivalent heating surface \div grate area	80.5
Firebox heating surface \div equivalent heating surface, per cent.	5.7
Weight on drivers \div equivalent heating surface	57.3



Boiler for Standard Eight-Wheel Switching Locomotive

two $3\frac{1}{4}$ -in. by $\frac{7}{8}$ -in. gun iron packing rings. The face of the bull-ring is $4\frac{3}{4}$ in. wide, increased to a width of 7-in. at the bottom for 45 deg. on either side of the vertical center line. The crosshead is of the same design and interchanges-

Total weight \div equivalent heating surface*	57.3
Volume both cylinders	15.9 cu. ft.
Equivalent heating surface* \div vol. cylinders	244.5
Grate area \div vol. cylinders	2.9

Cylinders

Kind	Simple
Diameter and stroke	25 in. by 28 in.

* See the *Railway Age* for July 19, page 131, and August 30, page 373.

Valves		
Kind	Piston	
Diameter	14 in.	
Greatest travel	6 $\frac{1}{4}$ in.	
Steam lap	1 in.	
Exhaust clearance	.0 in.	
Lead in full gear	5 $\frac{1}{8}$ in.	
Wheels		
Driving, diameter over tires	51 in.	
Driving journals, main, diameter and length	10 in. by 12 in.	
Driving journals, others, diameter and length	9 in. by 12 in.	
Boiler		
Style	Straight top	
Working pressure	175 lb. per sq. in.	
Outside diameter of first ring	80 in.	
Firebox length and width	102 $\frac{1}{4}$ in. by 66 $\frac{1}{4}$ in.	
Firebox plates, thickness	Crown, sides and back, $\frac{3}{8}$ in.; tube, $\frac{1}{2}$ in.	
Firebox, water space	Front, 5 in.; sides and back 4 $\frac{1}{2}$ in.	
Tubes, number and outside diameter		230—2 in.
Flues, number and outside diameter		36—5 $\frac{1}{4}$ in.
Tubes and flues, length		15 ft.
Heating surface, tubes and flues		2569 sq. ft.
Heating surface, firebox including arch tubes		212 sq. ft.
Heating surface, total		2781 sq. ft.
Superheater heating surface		.673 sq. ft.
Equivalent heating surface*		3737 sq. ft.
Grate area		46.6 sq. ft.
Tender		
Tank		Water bottom
Frame		Cast steel
Weight, loaded		167,900 lb.
Wheels, diameter		33 in.
Journals, diameter and length		6 in. by 11 in.
Water capacity		8,000 gal.
Coal capacity		16 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

Doings of the United States Railroad Administration

Instructions to Be Followed In Asking for Deferred Classification of Railroad Employees

DIRECTOR GENERAL MCADOO returned to Washington on Monday, after having spent nearly two weeks on an inspection trip over lines in the Eastern, Allegheny and Pocahontas regions, on which he was accompanied by several of his divisional directors and conferred with regional directors and federal managers. The trip included the New Haven, the Boston & Maine, the Boston terminals, the Cape Cod Canal, the terminals at Cleveland and Ashtabula, Pittsburgh, Altoona, Harrisburg, the Virginian and Coal & Coke railways and the terminals at Norfolk.

Deferred Classification to Be Asked for Necessary Railroad Employees

Instructions that the federal managers give their active personal attention to make sure that deferred classification in the new selective service draft is properly claimed for railroad employees that are necessary and also that no such claim is made where it can reasonably be avoided were telegraphed to the regional directors on September 10 by Walker D. Hines, assistant director general, with directions that they be given to the federal managers by telegram. The instructions state that, generally speaking, all skilled employees engaged directly or indirectly in the movement of trains should be regarded as necessary. A list of the kinds of employees regarded as being in this class is furnished and instructions are also given as to employees clearly necessary but not included in the list. Mr. Hines had preceded these instructions with a telegram directing that steps be taken to ascertain what employees were to be required to register on September 12 and to form local organizations to give assistance in the filling out of the questionnaires.

"The railroad under government control is an essential industrial agency," Mr. Hines said in his telegram, and "its necessary employees should be given deferred classification," but he pointed out that the making of unnecessary claims is both unfair to the government in its work of creating the necessary military and naval forces and injurious to the Railroad Administration in its effort to secure deferred classification for employees who are really necessary. The list referred to is as follows:

General officers, master mechanics, roundhouse and shop foremen, machinists, blacksmiths, boilermakers, tin and coppersmiths, pipefitters, electricians, freight car and passenger car repairmen and inspectors, respective helpers and apprentices of all the foregoing, chemists, locomotive inspectors, gang leaders, superintendents and assistant superintendents, trainmasters and assistant trainmasters, train despachers and directors, yardmasters and assistants, road

foremen of engines and assistants, travelling engineers, firemen instructors, locomotive engineers and motormen, locomotive firemen and helpers, conductors, brakemen and flagmen, train baggagemen and express messengers, yard foremen and helpers, hostlers, enginehousemen, telegraphers and telephoners, block operators, telegraph clerks, engineers of maintenance of way, division engineers, roadmasters, field engineers, supervisors, construction foremen, foremen on track work (generally known as section foremen), bridge, building and water service foremen, bridge building, ship and wharf carpenters, signal maintainers, and telegraph and telephone maintainers.

As to the employees not in the foregoing list, Mr. Hines said, the federal managers should exercise the greatest care and discretion to aid in obtaining deferred classification for those clearly necessary, while refraining from taking this step in other cases. Where a given position can be reasonably filled by promotion or by the employment of an outsider, male or female, no effort to secure deferred classification should be made. The mere question of inconvenience or increased expense is not sufficient for regarding an employee as necessary. But where, on account of the character of the work or the complete lack of availability of another to do the work, the existing incumbent is really necessary, the federal manager should take all practicable steps to secure deferred classification. In every case where deferred classification is sought the federal manager should make it clear to the incumbent that it is his duty to the Railroad Administration to claim deferred classification, so that the incumbent will feel no hesitancy about making this claim. If the incumbent does not make the claim, the federal manager or the appropriate superior of the incumbent in question should himself make the claim on behalf of the United States Railroad Administration. Steps should be taken to secure the most effective presentation of the matter to the local board and then to the district board, and the law department of the particular railroad should be called on to assist where such assistance appears to promise good results.

Director General McAdoo also gave instructions to the regional directors, in Circular No. 57 issued on September 18, giving a statement of the policy of the Railroad Administration in support of claims for deferred classification:

"I attach statement issued by the provost marshal general on September 9 to employers and other representatives of industry urging their co-operation in the classification of the new registrants under the selective-service act. In addition to the instructions already issued, on and after September 9, with a view to such co-operation, you are hereby instructed

to see that the railroad officers shall, in presenting or supporting claims for deferred classification before district boards, present the following to such boards as a statement of the policy of the United States Railroad Administration and of the general reasons in support of the claims made for deferred classification:

"All applications made by officers of railroads under federal control for deferred classification for railroad officers and employees and all affidavits made by railroad officers in support of claims for such deferred classification are made by them as officers of the United States Railroad Administration and by my authority and in pursuance of a general policy which in my judgment must be adopted in order to meet the war responsibilities which rest upon the railroads under federal control.

"The government of the United States has taken possession and control of the railroads as a war measure, and their efficient and unhampered operation is indispensable to the successful conduct of the war.

"The essential character of the railroad industry as a war enterprise is not open to dispute. Indeed, in contrast with nearly all war industries, the railroad industry is one of the very few which has actually become a government enterprise because of its essential character for war purposes.

"In such circumstances the men who are necessarily employed in rail transportation in this country are as truly employed in an indispensable war service as are our soldiers and sailors.

"Since the railroads are indispensable and the branches of the service to which the employees belong are indispensable, I understand the remaining questions for consideration by the district board are whether a particular employee can be dispensed with (1) on the ground that the railroad has more of such employees than it needs, or (2) upon the ground that it can readily replace such employees with others.

"Please state to the district board, with my full authority, that after eight and a half months of a thorough and continuing study of this subject, being constantly in touch with employers of railroad labor, the representatives of the railroad employees, and the representatives of the labor situation generally for the whole country, there is no surplus whatever of employees for running the railroads, and there is no surplus supply of labor from which new employees can be drawn to replace those who may be taken for military service. Any competent railroad employee taken from an indispensable branch of the railroad service will be subtracted from a force which is already too small and which can not be adequately replenished. The taking of any such employee by any district board would be a step tending to injure the war operations of some railroads. The taking of such steps by numerous district boards would in the aggregate constitute a cumulative and far-reaching injury to the United States Railroad Administration and would destroy the purpose for which the government took possession of such control of the railroads.

"The scarcity of skilled railroad employees is in part due to the fact that up to the present time the railroads of the country, in addition to meeting their full share of the demands of men for general military service, have been subjected to the peculiar disability that they alone, out of all the industries of the country, have had to furnish large numbers of men for special military service. Hundreds of miles of military railroads in France are being operated for the military forces of the United States who have been drawn from the ranks of the skilled officers and employees of railroads in this country. In this way the drain upon skilled railroad labor has already been proportionately greater than the drain upon skilled labor of other industries, and this in part accounts for the exceptional shortage of skilled railroad labor which confronts the United States Railroad Administration.

"It must also be clear that employees in these classes can not be supplied by the employment and training of new em-

ployees. Practically without exception these employments are not suited to women, but able-bodied and vigorous men are needed for the discharge of the duties. These men are not available in adequate numbers and will become less and less available as the war progresses. Besides, untrained men cannot perform the functions, and if skilled railroad employees are taken for military service the substitution of untrained employees, even if available, would prove destructive to efficient railroad operation.

"It is desired that the understanding and sympathetic cooperation of the district boards shall be sought in all instances. We are all striving for the same end, and that is to win the war. To the extent that railroad men can be spared from railroad service for military service we ought to spare them. But to the extent that they are needed for railroad service the district boards should not attempt to take them for military service.

"The United States Railroad Administration intends to ask for deferred classification only when the men on whose behalf the request is made are needed in the public interest for the continued performance of their duties and when experienced substitutes can not be found. And the district boards, upon whom rests the responsibility for preserving the necessary labor supply for essential occupations, should be urged to grant, in the interest of the national needs and with a nation-wide view of the controlling factors, the applications for deferred classification which are supported by the United States Railroad Administration.

"Instructions have been issued through the regional directors to all officials of railroads under federal control to see that proper applications are made for deferred classification for all necessary railroad employees and to support such applications vigorously, and at the same time to avoid making applications wherever reasonably practicable.

"It is the patriotic duty of the men who are considered necessary for the operation of the railroads to claim deferred classification and to furnish the district boards with the necessary information in their answers to questionnaires to show the basis for such classification. Every man who is helping in these necessary occupations to operate the railroads in this country is rendering not only a service indispensable to the war, but a service that is as praiseworthy and creditable as any war service could be."

Rules for the Issuance of Passes

The following rules governing the issuance of free transportation have been issued by the Division of Operation in Circular No. 19, effective January 1, 1919:

Annual and Time Passes.—1. The issuance of annual and time passes will be confined to the offices of the director general, director of operation, the several federal managers, the general manager on lines where there is no federal manager and the federal manager Pullman Car Lines.

2. Annual and time passes issued over the fac-simile signature of the federal managers (or general managers on lines where there is no federal manager) and countersigned by the person indicated thereon will be limited to—

(a) For, or on account of, their own officers and employees who do not require annual or time transportation on lines beyond their jurisdiction.

(b) For, or on account of, such officers and employees of the corporation as may be specifically authorized by the director general.

(c) To officers and employees of the American Railway Express Company whose duties are confined solely to lines under their jurisdiction.

3. Annual and time sleeping or parlor car passes will be issued by the federal manager Pullman Car Lines to officers and employees under his jurisdiction.

4. All annual and time passes not included in paragraphs 2 and 3 will be issued only by the director general or director of operation.

5. Annual passes bearing the personal signature of the director general will be good on all lines under federal con-

trol, on all trains, and for seats in railroad operated parlor or chair cars.

6. Annual and time passes bearing the fac-simile signature of the director general will be issued by the director of operation, and will be good on all lines under federal control or within the territory or over the lines specified thereon, and will bear express limitation as to certain trains upon which the pass will not be honored. Such passes will bear the countersignature of C. R. Gray, director; W. T. Tyler, senior assistant director, or J. H. Keefe, assistant director.

7. Annual and time sleeping or parlor car passes, other than for officers and employees of the Pullman Car Lines, and annual and time steamship passes, bearing the fac-simile signature of the director general, will be issued by the director of operation with the same countersignature as provided in preceding paragraph.

8. Federal managers and general managers on lines where there is no federal manager, will forward to the director of operation, on or before November 1, a list of annual or time passes (including sleeping car or steamship passes), required for officers or employees over lines other than those under their control, indicating the lines or territory over which the passes are desired.

Trip Passes.—9. Trip passes will be issued over the facsimile signature of the director general or of the federal managers (or of general managers on lines where there is no federal manager) and the federal manager of Pullman Car Lines, and will be countersigned by the person indicated thereon. Trip passes issued by the federal and general managers and federal manager Pullman Car Lines will be limited to the lines under their respective jurisdiction.

10. Trip passes bearing the fac-simile signature of the director general, with countersignature of person indicated thereon, will be issued by the director of operation, regional and district directors. Such trip passes will be honored for transportation over the lines indicated thereon.

11. Federal managers and general managers on lines where there is no federal manager, and the federal manager of Pullman Car Lines desiring trip passes for, or on account of, their officers or employees over other lines under federal control, will make request for same to the federal or general manager of such railroad in the same manner that exchange trip passes have heretofore been handled.

General.—12. Passes will not be issued which include the privilege of free meals in dining cars, at restaurants, or on steamships.

13. The current regulations of the Interstate Commerce Commission covering the issuance and record of passes must be observed.

Restrictions on Lumber Shipments

The Car Service Section has ordered an embargo, except as shipments may be made under the permit system, on lumber and other forest products to points north of the Ohio and Potomac rivers, effective on September 16. It does not apply to shipments on account of the government nor for railroad car building.

In connection with the restrictions Director General McAdoo issued a statement in part as follows:

This order was not issued on account of any particular congestion or accumulation, but in order to bring the movement of lumber into the industrial territory under such control as will prevent undue accumulation or overshipments, also delay to cars and other elements of transportation waste.

The experience of the freight traffic committees which have been operating in New York, Philadelphia and Baltimore for some months past, demonstrates not only the desirability, but the practicability of regulating the flow of

traffic by the permit system, based on conditions at destination with particular reference to the need of the consignee and his ability to handle the freight promptly on arrival.

It is not the intent to stop the movement of lumber or other forest products, but merely to control it. It is provided that permits will be issued by authorized bodies upon presentation by the consignee of evidence which justifies transportation service. This evidence will necessarily differ in different cases, the test being, in each instance, whether the need at destination and conditions there and en route are such as to warrant the particular movement at the particular time in its relation to other demands for transportation service.

Requests for permits covering shipments destined to points within the jurisdiction of the freight traffic committees at New York, Philadelphia, Baltimore and Washington should be addressed accordingly. Permits for all other shipments should be requested from the Car Service Section direct.

On account of short notice which was given it has been necessary to consider as in transit such cars as were in process of loading at the time the order was received by railroad officers at various points. It has also been held that shipments of fuel wood, logs, pulp wood or similar products which originate and terminate on the line of a single railroad may be authorized by the transportation officer of such railroad.

Grain Movement

Nearly 100,000 more cars of grain have been handled by the railroads this year than in the corresponding period of 1917, according to a statement issued by Director General McAdoo:

"The conditions existing in the grain trade this season have brought about an unusual situation, due principally to two factors, namely an abundant wheat crop, and a stabilized price which removes any incentive to hold wheat back on the farms for price fluctuations," he said.

"As a result of this situation, the grain has been shipped as fast as harvested and, as a matter of fact, nearly 100,000 more cars of grain have been handled by the railroads to date this season than in the same period last year. Naturally this tremendous flow of grain has overtaxed the storage facilities; at the present time not only are the seaboard elevators filled to capacity awaiting export, but the elevators at the primary markets are practically unable to furnish any more storage, and should the grain be allowed to continue to flow without control, the only possible result would be the use of cars for storage, resulting not only in congestion of tracks and terminals, but in putting the cars out of business for the other transportation needs of the country.

"To meet this situation, the Railroad Administration in conjunction with the Food Administration, has arranged to control grain movements throughout the country and to transport all grain under what is known as the "permit" system in charge of committees in the different grain zones which means that shippers will be furnished with cars, and permitted to ship, to the capacity of all the markets to take care of and promptly unload the grain. This not only will prevent congestion of the tracks and tying up of equipment, but will result in a regular movement of the grain traffic and the best distribution of equipment, with the effect of the greatest efficiency which, of course, results directly to the greatest benefit to the grain producers and the least disturbance of his business arrangements.

"It is interesting to know that already 75 per cent of the winter wheat has moved from the farms, while the spring wheat and oats are just beginning to move, and of the total wheat crop it is estimated that about 45 per cent has already reached the markets, which is far in excess of the usual amount at this time of the year."

Monthly Report of Capital Expenditures

Actual expenditures in connection with work chargeable to capital account by Class I railroads under federal control during the first seven months of the year amounted to \$299,123,730, according to the monthly report of the Division of Capital Expenditures, dated September 12. Of this amount \$272,150,528 was charged to capital account and \$26,973,202 to operating expenses. The total authorization to September 10 amounted to \$1,104,777,305 chargeable to capital account and \$126,252,909 chargeable to operating expenses, so that the unexpended balance was \$832,626,777 chargeable to capital account and \$99,279,707 to expenses. The itemized report is given in the table:

AUTHORIZATIONS AND EXPENDITURES IN CONNECTION WITH WORK CHARGEABLE TO CAPITAL ACCOUNT AS OF SEPTEMBER 10, 1918

FOR ALL CLASS I RAILROADS

Class of work (1)	1918 budget (2)	Additions to budget (3)	Operating expenses (4)	Capital account (5)	Work specifically authorized on D. C. E. forms 1, 2, 3 and 4 to September 10, 1918 Chargeable to—		Expenditures from January 1, 1918 to July 31, 1918 Charged to—		Unexpended balance Chargeable to—	
					Operating expenses (6)	Capital account (7)	Operating expenses (8)	Capital account (9)	Operating expenses (8)	Capital account (9)
Additions and betterments (excluding equipment)										
1. Widening cuts and fills, filling trestles, etc.	\$5,097,989	\$526,771	\$2,446,153	\$6,586,642	\$694,134	\$2,281,067	\$1,752,019	\$4,305,575		
2. Ballasting	9,379,271	198,226	3,090,234	10,021,896	839,713	2,327,342	2,250,521	7,694,554		
3. Rails and other track material	31,365,483	784,268	40,798,789	27,134,823	6,648,616	8,796,896	34,150,173	18,337,927		
4. Bridges, trestles and culverts	38,185,921	948,661	21,740,888	34,682,589	5,788,855	11,343,450	15,952,033	23,339,139		
5. Tunnel and subway improvements	2,185,242	47,071	754,835	3,890,242	238,931	530,275	515,904	3,359,967		
6. Track elevations or depressions	4,112,536	.....	1,665,164	13,099,090	255,170	1,621,734	1,409,994	11,477,356		
7. Elimination of grade crossings	7,438,957	243,732	1,060,271	11,423,006	266,271	2,161,650	794,000	9,261,356		
8. Grade crossings and crossing signals	631,082	37,227	146,801	1,260,607	66,356	661,889	80,445	598,718		
9. Additional main tracks	44,574,583	2,223,359	5,382,158	54,453,508	1,169,622	15,851,560	4,212,516	38,601,948		
10. Additional yard tracks, sidings and industry tracks	97,199,114	8,528,003	8,310,278	102,542,495	1,613,052	27,333,794	6,697,226	75,208,701		
11. Changes of grade or alignment	6,359,027	248,728	2,844,004	8,698,477	291,475	1,964,605	2,552,529	6,733,872		
12. Signals and interlocking plants	10,962,462	226,979	2,224,316	12,006,135	446,526	3,638,306	1,777,790	8,367,829		
13. Telegraph and telephone lines	5,129,149	268,672	711,303	5,184,143	347,600	1,584,592	363,703	3,599,551		
14. Roadway machinery and tools	955,857	128,869	81,784	1,358,956	10,222	837,157	71,562	521,799		
15. Section houses and other roadway buildings	1,306,847	118,621	189,059	2,316,171	67,559	1,554,548	121,500	761,623		
16. Fences and snowsheds	817,655	56,320	435,371	2,015,454	53,635	610,038	381,736	1,405,416		
17. Freight and passenger stations, office buildings	20,138,359	1,499,925	3,360,916	26,707,579	781,242	11,156,891	2,579,674	15,550,688		
18. Hotels and restaurants	199,282	148,979	13,326	467,473	1,656	182,879	11,670	284,594		
19. Fuel stations and appurtenances	6,090,558	1,164,425	1,007,972	6,621,167	264,410	2,137,508	743,562	4,483,659		
20. Water stations and appurtenances	13,430,047	587,826	1,663,210	8,607,667	412,629	3,190,064	1,250,581	5,417,603		
21. Shop buildings, engine-houses and appurtenances	62,694,927	3,389,037	5,589,958	42,594,516	1,208,381	9,849,288	4,381,577	32,745,228		
22. Shop machinery and tools	9,142,488	1,945,440	1,199,668	15,611,882	238,431	4,345,953	961,237	11,265,929		
23. Electric power plants, substations, etc.	10,781,347	1,623,362	1,979,751	19,584,935	202,243	3,684,593	1,777,508	15,900,342		
24. Wharves and docks	3,236,167	2,313,379	463,250	4,530,262	213,485	462,981	249,765	4,067,281		
25. Coal and ore wharves	7,024,937	227,224	657,258	5,332,572	272,856	2,437,854	384,402	2,894,718		
26. Grain elevators and storage warehouses	2,914,202	89,503	426,104	2,436,483	80,751	1,577,613	345,353	858,870		
27. Real estate	3,309,141	14,831	17,922	401,628	1,549	500,149	16,373	98,521		
28. Assessments for public improvements	1,179,306	199,700	58,037	1,643,131	32,968	967,556	25,069	675,575		
29. All other improvements	27,889,552	51,690	283,622	6,109,103	125,949	2,283,424	157,673	3,825,679		
Total (excluding equipment)	\$433,731,488	\$27,840,848	\$108,602,382	\$437,322,632	\$22,634,287	\$125,875,656	\$85,968,095	\$311,446,976		
Equipment										
35. Locomotives, steam	\$196,926,868	.....	.....	\$113,539,354	.....	\$40,413,984	.....	\$73,125,370		
Locomotives, steam, ordered by R.R. Administration	.....	.....	.....	76,873,355	.....	6,000,000	.....	70,873,355*		
36. Locomotives, other	.....	.....	.....	2,359,213	.....	1,008,552	.....	1,350,661		
Freight-train cars	212,858,464	.....	.....	88,136,785	.....	55,236,910	.....	32,899,875		
Freight-train cars, ordered by R.R. Administration	.....	.....	.....	.....	.....	.....	.....	.....
38. Passenger train cars	28,459,830	\$63,235	.....	289,46,000	.....	8,938,644	.....	280,521,356*		
39. Work equipment	12,927,109	1,075,821	.....	13,365,017	.....	7,755,393	.....	5,609,624		
40. Motor cars and trailers	.....	20,200	.....	5,880,247	.....	1,280,056	.....	4,600,191		
41. Floating equipment	.....	75,000	.....	587,853	.....	58,406	.....	529,447		
42. Miscellaneous equipment	.....	7,480	.....	4,263,404	.....	412,698	.....	3,850,706		
43. Improvements to existing equipment	35,807,654	1,102,243	\$17,626,691	34,388,188	\$4,346,199	13,892,792	\$13,280,492	20,495,396		
Total equipment	\$486,979,925	\$2,343,979	\$17,626,691	\$629,360,635	\$4,346,199	\$135,165,366	\$13,280,492	\$494,195,269		
44. Construction of extensions, branches and other lines	\$20,330,489	\$762,827	\$23,836	\$38,094,038	Cr. \$7,284	\$11,109,506	\$31,120	\$26,984,532		
Total all work	\$941,041,902	\$30,947,654	126,252,909	\$1,104,777,305	\$26,973,202	\$272,150,528	\$99,279,707	\$832,626,777		

*Expenditures to date. †Excess expenditure.

40,000 Tons of Rails Delivered Weekly

The Central Advisory Purchasing Committee, in addition to the considerable amount of detail work still necessary in following up the equipment contracts is devoting its attention to the steel situation. Inasmuch as it was decided not to place additional rail orders for the present because of the shortage of steel and because a large number of roads had not yet received delivery on their old orders careful study has been given to the distribution of the rails that are being rolled. Deliveries are now being made at the rate of approximately 40,000 tons a week and the committee has

established a rolling preference by which the mills give priority to the orders for roads on which the requirements are most imperative.

North Western Signs Compensation Contract

The Chicago & North Western was the first of the large railroads to accept the terms of the standard compensation contract offered by Director General McAdoo, based on the three-year average of the net operating income for 1915, 1916 and 1917. With the approval of the directors and stockholders the company executed a contract providing for an annual payment as compensation of \$23,364,028. This covers also the following subsidiary companies: Pierre &

Fort Pierre Bridge Railway, Pierre Rapid City & North Western Railway, Wyoming & North Western Railway, Missouri Valley & Blair Railway & Bridge Company and Wolf River Valley Railway.

Short Lines Resume Contract Negotiations

The committee representing the short lines resumed negotiations on Tuesday with the representatives of the Railroad Administration regarding the standard form of contract to cover the ordinary case which the latter have offered but which was still unacceptable to the short lines in some

particulars. The proposed form provides that the short lines shall be allowed to solicit traffic, shall be guaranteed a car supply proportionate to that of the government lines in the same territory, shall receive rate divisions not less than they formerly received, and that they may have their locomotives repaired at the government railroad shops for a reasonable percentage over the cost of the work. It does not, however, offer any compensation for losses caused by diversion of traffic.

Conditions in Southern Region

Director General McAdoo has received the following report from B. L. Winchell, Southern regional director:

"Conditions in the Southern region are somewhat more satisfactory.

"Final figures as to the earnings for July are not in for all lines, but those received show the following *increases*:

In gross revenue	\$12,442,161
In expenses	7,557,748
In net revenue from railroad operation.....	\$4,884,413

"The largest actual increase in net so far reported is by the Southern Railroad, \$2,388,042. The Nashville, Chattanooga & St. Louis road reports more than 200 per cent increase in net (\$549,463).

"We still have a heavy lumber traffic in sight and can turn it into earnings as car supply permits. One hundred thirty-five southern mills report as balance of orders on their books more than 24,000 carloads unshipped.

"In order to reduce pressure on our consolidated city ticket offices, and to better accommodate the traveling public, we have established inexpensive ticket agencies at the following military camps: Wadsworth, near Spartanburg; Greene, near Charlotte; Jackson, near Columbia; Gordon, near Atlanta; Johnston, near Jacksonville, and at the marine camp at Paris Island, South Carolina.

"In a general way, we have no congestion down here; most of our lines can handle more business, although some are close on power, but I am insisting upon better engine-miles per day.

"Our principal roads are loading more coal than ever before; they can load still more with better return of coal cars from connections (which matter is in hand); with some enlargement of facilities at a few points of restriction (which work is in hand, or is being planned), and with better car-miles per day, which essential is being followed insistently.

"We must soon have more coaches for our regular trains, or less travel. The coach demand for military service is overtaxing our southern lines' possibilities, and the demands for extra equipment for regular trains, necessary to meet the public convenience, cannot always be met.

"The crop prospects generally are excellent; we will surely have more cotton east of the Mississippi than a year ago."

Railroad Men May Complete Terms of Political Offices

Director General McAdoo has issued Supplement No. 1 to General Order No. 42 making the following modification of the order requiring railroad officers and employees to keep out of politics:

(1) It appears that prior to the issuance of General Order No. 42, various railroad officers, attorneys and employees were elected to political offices and are now holding such offices. In such cases, no objection will be raised to the completion of such terms of office. In all other respects, however, General Order No. 42 will apply to such officers, attorneys and employees.

(2) In cases where prior to the issuance of General Order No. 42 railroad officers, attorneys and employees had been nominated for political offices or had become candidates locally for such offices, they may continue in railroad employment until the election.

(3) The position of notaries public, members of draft boards, officers of public libraries and of religious and eleemosynary institutions are not construed as political offices.

Speed Up Locomotive Repairs

Director General McAdoo has instructed the regional directors to get the following message to every machine shop and roundhouse in their territories:

"General Pershing needs more locomotives in France to keep the big American smash going until the kaiser is pushed across the Rhine. The only way we can give General Pershing the locomotives he needs is for the railroads of the United States to take as few new locomotives as possible and thus permit the locomotive builders to send their product to France.

"We can not do without new locomotives unless we keep our locomotives in repair and moving all the time. I make a special appeal to every railroad mechanic and workman to do his level best to turn the locomotives out of the shops quickly and to keep their wheels turning on every railroad of the United States. Here is a direct way in which every man of you can help Pershing and his heroic soldiers and make certain the early defeat of the kaiser."

Fuel Conservation Circular No. 13

Eugene McAuliffe, manager, fuel conservation section, has issued a circular addressed to superintendents motive power and car department officials, men in charge of car maintenance, yardmasters and switchmen, conductors and trainmen, containing the list of recommendations submitted by a special committee of the Air Brake Association for the prevention of such fuel losses as may be avoided by proper air brake maintenance and operation. The recommendations were published in the *Railway Age* of August 9, page 252. The chief operating officer of each railroad is asked to direct the attention of every employee who is concerned with the maintenance and operation of brake equipment to the observance of these recommendations and to have copies of the circular posted on bulletin boards and furnished to employees for posting in train cabooses.

C. & O. Canal Taken Over

The Chesapeake & Ohio canal, connecting Washington with the coal fields at Cumberland, Md., has been taken over by the Railroad Administration and will be operated under the direction of the new Division of Inland Waterways. There has been considerable agitation for the taking over of this waterway but it was at first decided not to operate it but to render it assistance. Five barges are to be towed to Washington this week to be put in service on the canal and five more will be delivered later in the month. Eighty-four boats are now operated on the canal.

Marine Section Discontinued

Circular No. 55 announces that effective September 1, the marine section of the Division of Transportation, the creation of which was announced in Circular No. 5, has been discontinued. Coastwise steamship lines under federal control will be under the jurisdiction of the federal manager as announced in Circular No. 52. Shipping on the Great Lakes under federal control will be under the jurisdiction of the regional director, Eastern Region.

* * *

The Car Service Section has asked all federal controlled roads to furnish it with definite detailed information relative to the number of cars under lease, or leased by federal controlled roads, either from or to other railroads, private car lines, firms or corporations.

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G. C. Woodruff has been appointed chairman of the committee on l. c. l. freight, Eastern Region, vice C. H. Ketcham.

Operation of the U. S. Military Railways in France

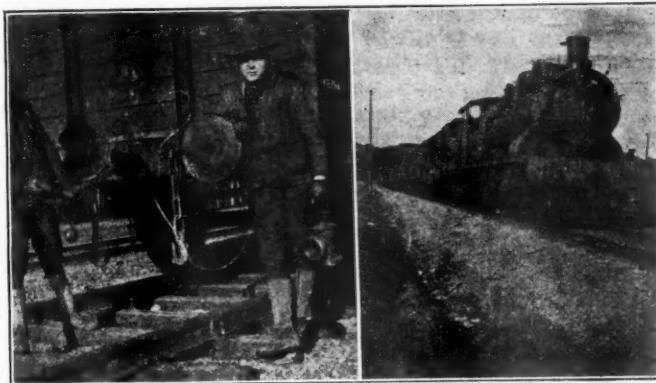
How Americans Adapted Themselves to New Transportation Conditions Encountered Overseas

By J. G. Porter

Private, Co. E, 13th Engineers (Railway), American Expeditionary Forces

AT A CERTAIN PERIOD in the early part of the present war the French High Command suddenly realized that a new military railroad was a vital necessity to its success on this front. Up to that time, this sector, one of the most important and strongly fortified on the western front, had to depend for supplies and ammunition on one incorporated single track narrow gage line and on an old highway known as the "Sacred Way." The "Sacred Way" accommodated four camions running abreast; it was utilized to the fullest possible extent and was equipped with telephones, despatchers, and meeting places for west bound traffic; it with the narrow gage road proved insufficient for the enormous amount of material urgently needed at the front for successful operations. Consequently, one of the large French construction regiments was moved up and at once started on the task of constructing 60 kilometers (37.28 mi.) of single track line from the front to a junction

tached to his French predecessor on the job in order to become familiar with the methods of operators, supplies, French forms for reports, and other details of the work. The regiment was quickly whipped into shape as the organization was copied minutely after the French methods which had proved their efficiency during three years of war. Our officers were made division superintendents, superintendents of motive power or similar positions, and were given charge of the larger detachments at important towns. The enlisted men were made non-commissioned officers and their rating depended on the positions they were qualified to hold from their former railroad experience in the States; thus the master engineers were made traveling road foremen or given charge of coal chutes and shops. The sergeants were appointed station agents (or Chef de Gare), yardmasters, or placed in charge of the water supply. The corporals were made conductors or Chef de Train, and section foremen. First class privates were made operators, and privates are brakemen, clerks, firemen, switchmen, enginemen, callers, machinists, and section men. This latter classification may not appear to be quite just, and yet to conform with military regulations, it is necessary. There are not enough non-commissioned officers' places for all, and as it is necessary for conductors, agents, and section foremen to have men in their charge, they are of higher rank. As a consequence enginemen, machinists and some of the higher paid men on American railways, receive the least in a railway regiment, although the difference in salary is slight. There are always a few in each outfit who are disappointed by not getting the position or rank they expected, but this feeling soon passes, and everyone settles down to his work.



Type of Car Couplings in Use

Train on a Military Railroad

with a main line on one of the largest French railroads. Because of the vital need of this road, the work was pushed as fast as possible and at the end of 31 days, the first 23 kilometers (14.29 mi.) were completed and in operation. This relieved congestion at the loading points and by means of a circuitous route the trains were turned over to the French railway via a branch line. To the engineers in the United States this may not seem a record-breaker in speed of construction, but it must be remembered that absolutely all cuts and fills had to be done by hand as there were no steam shovels, air dump cars, etc., available. After a reasonable time the line was fully completed, as were also two branch lines. Double tracking was then started and finished last spring. In the mean time, however, our regiment, the 13th Engineers (Railway) had arrived in France and was attached to the French army. On a certain date, nearly a year ago, this road was turned over to us to maintain and operate.

The 13th Engineers in Charge

For a few days before the road was completely turned over to us, the station and yardmen were sent out to their various stations on the road, the trainmen and enginemen rode over the road with French crews and everyone was at-

Housing of the Men

We are not billeted in French families as we had expected to be, but live in the regulation French army barracks, and each detachment is very much like a large family. At the different terminals there are large barracks for the trainmen and enginemen, all bunks being numbered to enable the caller to find his victim. There are always reserve barracks at the terminals for the use of train crews laying over from the other end. Here they can draw a couple of blankets, are assigned to a cot and can rest until called, the blankets being then turned in at the desk.

At the smaller stations, the station crew generally lives in barracks, while the agent and operators live in the station. All grade crossings have gates and two crossing tenders and as most of these crossings are isolated, the gate tenders live in their shanties and do their own cooking.

All stations on the road have kitchens with assigned cooks and sufficient helpers for the number of men in that detachment. At the terminals and larger stations there are several kitchens and a man generally goes to the kitchen where he has a pal working unless they happen to be serving pie or pancakes at another location. The supplies are shipped out from the regimental commissary department at the town in which headquarters are located, in lots sufficient to feed men at the various kitchens for 15 days. A supply car runs over the road each day, however, with the daily supply of war meat and bread. The conductor and brakemen on this train

are usually to be found in the supply car—and there's a reason. Every 30 days each company office issues to each man a meal book with three coupons per day in it, for the following month. All roadmen, or anyone away from his home kitchen can present this meal-book at any other kitchen, at any hour, and by signing his name on the back of the coupon can draw a meal. Of course, all roadmen carry the meal book as religiously as they carry their mess kit, gas mask, or tin Kelly. Every night each kitchen turns in these tickets to the commissary department and this determines the supplies to be issued to that kitchen for the next day as this number of meals are subtracted from the original 15 days' supply which was issued to that kitchen.

Methods of Operation and Class of Trains

The road is not equipped with despatchers' phones, so all blocking of trains between the various stations is handled by the operators. Before double tracking was completed the meets were difficult to arrange because of the different lengths of the sidings, the different classes of trains, etc. The time card shows 24 trains a day each way, all of equal rights and class, although in time of emergency, the trains are handled in the following order—troop, ammunition, sanitaire, artillery, supply, miscellaneous and permissionnaire. In extreme cases this has been changed by the French army issuing a "Special Movement" to some train, in which case that train is superior to all others and cannot be delayed. When I say that the running time over a road 60 kilometers (37.28 mi.) long is six hours, it may seem impractical at first, until some of the factors are considered. The vital need for this road necessitated building it in as short a time as possible, consequently the grades are heavy, the curves very sharp, and as both the French cars and rails are of light material, a fast schedule cannot be maintained. Trains running on time are always 30 minutes apart, for instance, the departing time eastbound from one station is 2 min. after the hour and 32 min. after the hour. From this schedule it can be seen that the paramount idea is slowness and safety. Although the trains move slowly, there is a smoothness and surety about it all that is very welcome in times of rush and emergency. The method employed in obtaining the block is the same as in manual block territory in the States, and a similar block sheet record is kept. We have no train order signals and in the double track territory a hand signal or "high ball" is all that is required unless the train has work to do at that station. Trains "permissionnaire" stop at every station to take on and discharge permissionnaires or soldiers on furlough. The trains sanitaire are the only solid air trains that we handle and they stop frequently to water and feed the patients.

The object of the trainmen and enginemen over here is not to make as many trips as possible, but to keep as near the bottom of the list as they can, because they draw their \$1.10 lying in the barracks the same as on the road. We have only one regular run to which two crews are assigned. This is a pickup run both ways and is a preference job during troop movements and heavy business, but during quiet times the crew generally wish they were back on the board.

Reports Required

The Chef de Train, or conductor, carries a sheet which shows the train number, crew, classification of train, and destination. The consist of the train is shown, and the time of its arrival and departure at each station. All slow orders and all explanations of delays are shown on this same sheet, which is turned in at the end of the run and is filed in the office of the superintendent. On the back of this sheet are several blank spaces to be filled in by the operators in single track territory, because it is necessary for a train to stop at each station to receive a written block to the next station,

signed by the agent or operator on duty. Several blank spaces are also provided to be used by operators when for any reason it becomes necessary to run a train against the current of traffic. All trains use the left hand track under normal conditions. The engineman carries no running orders or sheet of any kind, but before leaving a terminal, reads all slow orders written on the conductor's movement sheet. The conductor also carries a train sheet in duplicate, one copy of which goes to the French road, when the train is turned over to it and the other copy goes to the files in the superintendent's office. On this sheet all car numbers and series initials, tonnage and destination are shown. It is a French form that has not yet been printed in English, but our men are now thoroughly familiar with it.

The caboose or way car is carried next to the tender instead of at the rear of the train, and is furnished with racks for mail, parcels and way bills. The brakemen ride in cupolas built at the ends of the cars. Most of these are open on two sides or else the enclosed type have several windows broken, so although it is comfortable in summer, it is not a very pleasant place on a cold winter night.

The Chef de Gare, or station agent, has charge of the operators, switch tenders, switch crews, and yard masters. All way bills are made out by a French Commissaire Militaire at each station. They are turned over to the Chef de Train picking up the cars, and while they are a French form and written in French, practically no confusion has occurred although we sometimes are doubtful about the initial number or destination. Each station personnel includes two or more interpreters to assist in all conversations with the French authorities or those desiring information of any kind. All station switching is done by switch tenders and the yard crew of that station, leaving only the picking up and setting out of cars for the train crews.

Methods of Communication

No telegraph instruments are in use and the block phone is a simple wall phone connected two ways by a pair of small, two-position knife switches. The phones to switch shanties at yard entrances are of the same type. The more important stations are connected by a long distance phone over which we get our messages, line up of trains for the day, receive special orders, etc. The French signal corps still has charge of the exchanges on this long distance line, and through them we are able to reach any station or any place in France. The twenty-four hour system of time is used and all clocks are regulated from the Paris observatory. At first, a departing time of 19.18 or 23.41 was a little confusing, but by merely subtracting 12 for all time after noon, it is really very simple.

The Handling of Trains

All cars are handled, destination for empties, and re-routings made, from the local French army headquarters or Regulatrice. Our superintendents' office or movement office receives its orders from the local Regulatrice and from the movement office. These are given daily to the various stations and shipping points on the line. Troop trains consisting of a certain number of flat cars, box cars, and permissionnaire cars are kept constantly in readiness in the large yards and always remain intact. As they move over the road under no condition or circumstances are they allowed to pick up or set out cars from the train.

All heavy artillery or French A. L. G. P. trains are handled as "Special Movement." The initials, when translated stand for "artillery of long range and great power." These cannon frequently weigh as much as 60 French tons apiece (a French ton=2,204.6 lb.) and are always handled to a certain point by a special camouflaged A. L. G. P. engine. From this point they are handled on a very slow schedule by our own engines and crews. On all A. L. G. P. ammu-

tion trains, a brakeman is furnished for every 10 cars, and all side brakes are sealed into place to prevent them from dropping down while the train is moving. Only the wheel brakes in the cupolas are left free to operate and they must be handled with the utmost care to prevent the ammunition and explosives from jarring out of the racks in the cars.

The Equipment and Tonnage of Trains

The average empty box-car weighs several tons and is 18 ft. long with a single pair of wheels at each end. The body of the car is mounted on each side on a six or eight-leaf spring over the axle. This is a very fragile arrangement and after a derailment it is necessary to jack all cars on instead of pulling them back, in the familiar American manner, otherwise the wheels are thrown out of line and another derailment is likely to occur. An average load weighs 18 tons except cars of rock which run as high as 30 tons. The extreme lightness of all cars is perhaps the main reason for the almost absolute absence of hot boxes. Just a few nights ago, I had my attention called to the second hot box I have seen since coming to France. The permissionaire cars are more like American cars, some of them being 60 ft. long with double trucks pivoted under each end. The sanitaire or hospital cars, are the heaviest of all as they are generally of steel and are very compactly built with their racks of steel beds, kitchens, etc. They are electric lighted by dynamos driven by the wheels and are by far the most luxurious car we handle.

An 80-car train is as much as the French will accept from us although we have given them as high as 94 and many of the boys still cherish hopes of taking in 100 cars. The trains generally weigh about 800 tons and never more than 1,200. With the heavy grades, sharp curves, and poor coal, this has proved to be plenty for one engine and one pusher to handle over the road. Before we came, the French rarely handled more than 700 tons over this road with either their own or the English A. L. V. F. engines.

The couplings have proven a severe trial to our true American switchmen. They are similar to the old link and pin except that in place of the pin there is a hook that the link fits over. The coupling has to be made very quickly when the cars come together and the buffer springs are compressed, otherwise, as the cars are very light they will bounce apart on the slightest jar. Between the two links there is a screw adjustment and once the switchman is lucky enough to get the two cars hooked together, he generally finds he has about five inches of slack that must be taken up by the adjustment before the buffers touch. The drawbars are of very light material but our enginemen have learned to handle them with the utmost care. Each car is equipped with two stay chains to supplement the drawbar.

Maintenance of Way Standards

The switch stands are the same as those used in England, which have a heavy weight on one side to bring the points back and to close them. A switch needs only to be lined up for a facing train as all outgoing trains trail through it and it will drop back to normal after the last pair of trucks has trailed through.

The original rail in use was a double-ball interchangeable rail made in France. All rails being renewed now, however, are being replaced by American-made rails of about 75 lb. weight. The gage is about two centimeters narrower (0.78 in.) than the standard American gage. Crushed rock is used almost entirely as ballast. The joints are very similar to the 100 per cent joint. All ties are creosoted and are equipped with rail plates. Three lag screws are used in each end of each tie instead of two spikes.

In many ways the rules and practices of operation and maintenance of a military road as I have described them

here, will seem simple and almost impracticable to American engineers. However, before passing judgment on French methods, it must be remembered that just this same slow, simple, and efficient operation has kept their men at the front so well supplied that for the last four years they have more than held their own in this struggle. Truly Marshal Joffre was right when he said in 1914, "This shall be a war of railroads just as 1871 was a war of artillery."

Orders of Regional Directors

COVERING CRANES WITH PRIORITY CERTIFICATES.—The Eastern regional director announces that if there are any undelivered orders heretofore placed for which application for priority certificate has not been made, such application should be filed immediately.

Exchange of Free Transportation.—The Southwestern regional director announces that transportation now in the hands of officers of railway lines not under federal control will not be withdrawn but that additional transportation will not be issued.

Obsolete Freight Car Equipment.—The Northwestern regional purchasing committee asks railroads under its jurisdiction to report any freight car equipment which they contemplate retiring so that the War Board of Electric Railways may determine whether it can be used on electric lines.

Salvaging Hides of Stock Killed on Right-of-Way.—The Northwestern regional director recommends that the hides of animals killed on railroad right-of-way be salvaged. This practice, he says, is highly desirable at the present time because of the shortage of leather.

Revised Prices on Portland Cement.—The Northwestern regional purchasing committee announces the prices on cement, as determined by the War Industries Board for the four months ending December 31, 1918, and the conditions under which purchases of Portland cement are to be made by the several departments of the Government.

Re-rolled Rail.—The Northwestern regional purchasing committee, suggests that railroads consider the use of re-rolled rail and points out that the American McKenna Process Company has a capacity of approximately 15,000 tons per month. Railroads are asked to report the extent to which they will use re-rolled rail as a substitute for new rail, the amount of rail available for re-rolling, etc.

Dismantling of Freight Cars.—The Southwestern regional director announces that when the cost of repairs to freight equipment exceeds the amount allotted to be expended for that purpose, the federal manager or general manager may authorize in writing that the cars be dismantled. Before such cars, or cars which are not worthy of repairs, are scrapped the regional director advises that they should be set apart for inspection by the corporation officers who will determine their final disposition.

Conservation of Fuel.—The Southwestern regional director quotes a letter from Eugene McAuliffe, manager of the Fuel Conservation Section of the Railroad Administration, recommending that cinder pit forces, car riders in switch yards and other employees be prohibited from making open fires from lump coal taken from cars and engine tenders. He suggests that when a fire is actually necessary a small shelter house with a stove be installed, thereby reducing the consumption of coal to a fraction of that used in the open fires.

Maintenance of Tracks—Army Camps.—The Eastern regional director announces that the following order has been issued to Colonel R. C. Marshall, in charge of Construction Division, Quartermaster Corps: "The Construction Division will maintain or cause to be maintained in safe and serviceable condition all trackage within the camp and cantonment reservation limits and camp quartermasters will keep careful

account of all expenditures, including labor, necessary for proper maintenance of trackage in any case in which railroad company fails to properly maintain trackage." The last portion of the order, relative to camp quartermasters keeping careful account of all expenditures necessary for proper maintenance of trackage, etc., has to do with cases where it might be necessary for the war department to repair tracks outside the military reservations. Any bills covering such work should be given special treatment, each case to be treated upon its merits.

Fuel Cost of Motor Car Operation.—The Northwestern regional director calls attention to savings effected by the use of kerosene to propel McKeen motor cars. McKeen motor cars operating on the Ann Arbor and equipped with kerosene carburetors used kerosene during the month of July at a cost of 3.87 cents per mile, or a saving of 6.39 cents per mile under the cost of operating the cars with gasoline. The expense of equipping McKeen motor cars with kerosene carburetors amounts to \$500 per car.

Protection of Cotton From Fire in Transit.—The Southwestern regional director quotes a letter from the manager of the Insurance and Fire Protection Section of the Railroad Administration on the protection of cotton from fire in transit. In the past the railroads carrying insurance on cotton were restricted under their insurance contracts to the loading and shipment of cotton in closed cars only, and instructions were given that agents see to it that car doors were securely closed, cleated and all openings closed spark tight. Railroads are asked to observe equal caution under federal control.

The Hazard of Smoking.—Emphasis is placed on the necessity of prohibiting smoking on railroad property where inflammables are handled. Federal and general managers are asked to issue instructions prohibiting smoking in shops, coaling stations, piers, warehouses, storehouses, freight houses and offices, including record rooms, and around freight platforms and all places where inflammables are handled or stored. Watchmen, guards, officers and other employees in charge of property must see to it that the rule is enforced.

Reports of Large Fire Losses.—Hereafter all railroads will be required to send immediate telegraphic reports to the Insurance and Fire Protection Section of all fire losses amounting to \$10,000 or over. This preliminary report will give as full details as are obtainable, including the character of the property damaged and an estimate of the loss, and will be followed by a full report of the investigation of the loss. The report should indicate whether any fire insurance was still in effect on the property damaged or destroyed. If such is the case, insurance companies should be given every opportunity to examine into the loss, as has been their custom in the past.

Shortage of Metals.—The Eastern regional director advises that owing to the curtailment of blast furnace operations this year, and particularly in January and February, there exists a very serious shortage of pig iron which is vitally affecting war necessities, including the steel for proper maintenance requirements of the railroads. It is necessary that every possible effort should be made to get the maximum tonnage of scrap shipped to the steel mills at the earliest possible date as the need is very urgent. The War Industries Board advises that nothing that could be done by the railroads would contribute so much to the steel situation, as the adoption by the railroads of a general "clean up scrap" policy.

It is also urged that all railroads assort scrap into the principal grades that will bring more than \$29.00 per ton, and do this before offering it for sale. The purpose of this request is to save transportation and the delay consequent thereto, because if old material is sorted when offered for sale, it can be shipped direct to the point of consumption and need not be sent to a broker's metal yard for re-handling and re-classification there.

You are, therefore, requested to do all of this that you can accomplish, bearing in mind, however, that if labor is so scarce with the railroads and sorting facilities so meagre, that the net result would be worse if the railroads were going to undertake the sorting rather than to leave it to the old material brokers, it will be better to let the latter undertake the sorting and that the railroads should sell their scrap unassorted.

Storage of Bituminous Coal.—The Eastern regional director announces that the Fuel Administration has decided upon certain changes in the allotment. The new basis provides that railroads may have on hand supplies of bituminous coal as shown below, for example, 90 days for Massachusetts, instead of 75 days. There are certain reductions in the territory most readily served.

MAXIMUM NUMBER DAYS STORAGE BITUMINOUS COAL
STEAM COAL

State	State		
Maine	120	District of Columbia	30
Massachusetts	90	Virginia	30
Vermont	90	North Carolina	30
New Hampshire	90	South Carolina	30
Northern New York	90	Georgia	30
Connecticut	75	Florida	30
Rhode Island	75	Western Ohio	30
Southern New York	30	Western Pennsylvania	30
New Jersey	30	West Virginia	30
Delaware	30	Eastern Kentucky	30
Eastern Pennsylvania	30	Eastern Ohio	30
Maryland	30	Lower Michigan	90

Agricultural Development.—Attention has been called to the establishment of the Agricultural Section of the Division of Traffic, with J. L. Edwards as manager, at Washington. Mr. Edwards expects at an early date to get in personal touch with the heads of the agricultural work of the various railroads. Many of the railroads have heretofore cooperated in their agricultural work with the agencies of the U. S. Department of Agriculture and also those of the U. S. Food Administration. The Agricultural Section will assist in co-ordinating these activities to the greatest extent possible throughout the country. The agricultural representatives of the railroads will be expected to keep in close touch not only with the growers themselves and their organizations, but with all agencies interested in farm development, especially representatives of the Department of Agriculture, Food Administration, state agricultural departments, county agents, civic bodies, newspapers and magazines, and private parties, such as manufacturers of farm implements and fertilizer, and bankers; seeking the active co-operation of all interests, including local agents and employees of other departments of the railroads, and endeavoring to co-ordinate their efforts along the most useful and practical lines.

Active development work on the part of the existing agricultural departments of the railroads is considered highly desirable, particularly along the lines of increasing the production of foodstuffs and other essential farm crops, bettering the quality, bettering the preparation for market, aiding in finding markets, greater use of labor-saving devices and machinery, more efficient utilization of labor, the use of safer containers, proper loading of cars, heavier car loading, better adjustment of schedules for handling perishables, improvement in refrigeration in transit, furnishing information of prospective transportation requirements for moving farm products, etc.

It is expected that the carriers will continue to prepare and furnish correct and appropriate information for use in answer to inquiries looking to the development of undeveloped raw material and agricultural resources of their territory. This can readily be done by employees reporting to the freight or passenger departments of the railroads. Many lines have assembled valuable data and specimens of minerals, soils, etc. It is expected that the same will be available for use, and that the roads will afford adequate information and service to prospective industries and settlers.

The Inadequacy of Present Depreciation Accounts

Proper Accounting Methods Essential During Government Operation. Effect of Rules Now in Force

By Owen Ely

THE WIDE-SPREAD ANTAGONISM to the railroads which in the past has been evident in the debates of legislatures and of Congress, springs mainly from the old idea that most roads are over-capitalized. It has been impossible to discover in many cases whether a company's earnings were over or under-stated in reference to the property account (the New York, New Haven & Hartford furnishes a classic example). This, of course, is a condition common to all industry, but it is less to be tolerated in the railroad industry than elsewhere because the government has undertaken to regulate both the amount of railroad revenues and the method of keeping the accounts. The physical valuation of railroads was undertaken to remedy the situation and to establish a fair value for railroad property. The work is proceeding so slowly and laboriously, however, that there is talk of suspending it.

Even though the valuation be abandoned, it is essential that the current accounting for additions and betterments be properly done. The reforms introduced by the Interstate Commerce Commission since 1907 make the property accounts more accurate than they were before that date; and as time goes on the error in the old accounts will be a smaller and smaller percentage of the total investment. The commission has not, however, given the problem the attention which it deserves. Under the war administration it is to be hoped that the director general will recognize the importance of this subject and will, in co-operation with the commission, make a careful study of the accounting problems involved. The government has undertaken to return the roads to their owners in as good condition as when they were taken over, and this implies a proper accounting for new investment and for depreciation of the old property. Moreover, one of the surest means of restoring the credit of the railroads after the war is to assure the public that a railroad balance sheet faithfully reveals the condition of the property, and the income account its true earnings.

Before June 30, 1907, on which date the accounting regulations of the Interstate Commerce Commission became effective, the property accounts of American railroads were not kept according to any uniform principle. Some companies retained the same figure on their balance sheet year after year to represent the investment in road and equipment, additions and betterments being charged to operating expenses in lieu of depreciation. Under these prevailing conditions it was impossible for stockholders to determine how accurately the profit and loss balance measured the accrued profits. The accounting practice in this country even at that time, however, was more nearly correct than that followed in England, where the railroads do not credit to their property accounts the value of lost or abandoned property, although expenditures for renewals, as well as betterments, are charged thereto.

Since 1907 the commission's accounting regulations have required the railroads of this country to distinguish carefully between operating charges and capital charges. Worn out or abandoned property is charged to expenses (or profit and loss) and credited to investment; when a replacement involves any addition or betterment to the property, a net charge is made to the property account to cover the value of the betterment. There are many technical problems involved

in the theory of replacements, principally relating to the standard of "replacement in kind" adopted by the commission. The rapid changes in the cost of supplies, the substitution of new materials for old, and the use of improved facilities has made it difficult to interpret the commission's rules. Nevertheless, in adopting a policy of replacement in kind rather than mere restoration of the original property in terms of money value, the commission has followed the right principle. If money value had been chosen as the measure of replacement, the net income of the roads would have been considerably increased, because the rapid rise in prices of materials would have resulted in charging to appropriations for betterments large amounts which should have been charged to operating expenses. The roads might thus have displayed a fictitious prosperity which would have made it still more difficult to gain needed relief from the government through increased rates.

At the same time that it established rules for replacement accounting, the commission provided equipment depreciation accounts. If the transportation industry were fairly stable, and if the temptation to shift net earnings did not find easiest expression in an arbitrary statement of equipment losses, it would perhaps be unnecessary to insure the life value of the equipment through depreciation reserves or otherwise; in other words, it might be assumed that the value of the units going out of service each year would average about the same in proportion to the total equipment investment. But even under such favorable conditions, the mere fact of the growth of the property would require reserves to be set aside. Where new rolling stock is being constantly added to care for increased business, there is always an abnormal proportion of "young" equipment, with a low mortality rate during the period of its greatest service. Such equipment yields the highest net earnings during the period of least retirements, and it is evident that such earnings should be offset by the actual, though unrealized, depreciation on such equipment. If any particular railroad should then reach a declining period, it would find its equipment fully protected. The failure to provide such reserves may be as important a factor as loss of credit in bringing on a receivership.

If the transportation industry were similar to the average manufacturing industry, depreciation reserves might be maintained for all the principal items in the roadway and structures account, as well as for the equipment. Transportation is not like other industries, however: a railroad covers such a wide area, its facilities and plant are of such a varied character and subject to such different influences of wear and tear, and the amount of its production fluctuates so widely, that the depreciation rules applicable to a factory are of little value. For these reasons, little progress has been made with the depreciation principle as applied to roadway and structures. Although the commission made provision for depreciation accounts under maintenance of way and structures expenses in the 1914 classification, very few roads make charges to such accounts; the total of such charges for Class I roads in 1916 amounted to only \$4,858,355 out of total maintenance of way and structures expenses of \$404,514,144. Few railroads have kept experience tables for rails, ties, ballast, etc. The physical depreciation of station buildings can be worked out, but obsolescence due to traffic conditions,

etc., is an important and variable factor. The commission allows large expenditures for replacements in roadway and structures to be charged to expenses over a period of years or charged to profit and loss as a lump sum.

Equipment differs from roadway and structures in that it is divisible into small units; experience tables can be compiled and an approximate rate of depreciation worked out (although obsolescence is a disturbing factor). Moreover, the danger of overstating the investment is probably greater with respect to equipment than for roadway and structures, because the equipment though abandoned may be kept on the books, being replaced in operation by borrowed property.

Depreciation Accounts

Depreciation accounts for equipment were established in 1907, and although the roads were not required to make any charges to these accounts, most of the larger companies do so at the present time. The fact that the commission has not undertaken to regulate strictly the rate of depreciation to be charged has brought about a great variety of results, some roads charging two per cent and others five or six per cent. In some cases different rates are charged for the different classes of equipment.

The general method and purpose of the depreciation accounts may be stated as follows: (1) Expenses are charged with an amount representing an estimate of normal loss or depreciated value, not restored by repairs (other losses being chargeable to the retirements accounts or to profit and loss account); (2) the amounts so charged are credited to "reserves for depreciation," and these reserves are drawn on as the various units are retired, thus avoiding the dangers due to postponing retirements, and promoting a higher standard of maintenance; (3) such reserves not being actual sinking funds, do not call for any actual outlay of cash, but in effect restrict surplus and thus make an equivalent amount of cash available, when required, for investment in plant or other assets; (4) through the correct statement of net income, the dividend rate is stabilized and the company's credit increased; and (5) by writing off the loss due to depreciation, and preventing an over-statement of free surplus, the payment of dividends out of capital, and the consequent exploitation of the property is guarded against.

How does the reserve for depreciation affect the actual policy in respect to the operation, hire or purchase of equipment? An ideal theory of equipment depreciation would, perhaps, assume the equipment to be a constantly wasting asset, and would restore such waste by immediate investment of the depreciation fund in new equipment. In practice, however, American railroads have not found it advisable to maintain actual cash reserves from their depreciation charges, or to invest such cash in new equipment. The purchase of new equipment is largely financed through the sale of equipment trust certificates, and the rate of interest required to market such securities may be just as important a factor, in deciding when new equipment shall be bought, as is the operating department's need of rolling stock. The trust certificates are retired in equal amounts from year to year (generally over a period of fifteen years); thus the cash released by the depreciation expense charges may in effect be devoted to meeting these annual payments, and the same practical result be obtained as though the reserve were immediately invested as a cash fund in new equipment. The connection is so indirect, however, as to be of little practical interest. It is perhaps to be regretted that there is not a closer connection between the actual financing of equipment purchases and the accumulating of the depreciation reserve. Possibly the reserve could be made an amortization fund instead of a mere bookkeeping record. At any rate, the fact that at present it represents only an arbitrary accounting procedure results generally in a wide discrepancy between the equipment accounts and actual equipment values.

Rate of Depreciation

The most important problem of depreciation is the determination of the rate, i. e., the yearly percentage of the investment which should accrue to the depreciation reserve. This must depend upon the practical conditions and problems to be met. A correct method for determining the depreciation of a telephone plant probably would not serve as the best basis to apply to a steam locomotive. Among the various elements which enter into the problem are the following: (1) earning power; (2) efficiency of service; (3) amount of service rendered; (4) wear and tear; (5) age in proportion to estimated normal life; (6) special losses, as fire, wreckage, etc.; (7) increased cost of replacement in kind, and different values of various units, due to changes in cost of construction; (8) obsolescence, due to new inventions or new methods of operation; (9) the increased durability and service capacity of new equipment, or of old equipment rebuilt, owing to progress in the art of mechanical engineering; and (10) the varying proportion of the value retained as salvage after retirement.

Earning power would perhaps furnish a basis of depreciation, if it were determinable. It is necessary, however, to include future as well as present earning power, and there are too many elements of uncertainty in such a basis. Financiers and railroad men have often regulated their maintenance appropriations on the basis of current earnings alone; and many a road, in trying to keep up appearances, has mortgaged its future and fallen into the hands of the receiver. Earning power is, therefore, in no sense a reliable gage of depreciation.

Efficiency of operation, the second factor named, does not furnish even an approximate test. It is possible to maintain high efficiency even though the railroad as a whole may be somewhat depreciated or certain parts very much worn out. When a road is first constructed a certain amount of depreciation is taken into consideration and the weakening of certain units is provided for in advance. On the average railroad of today the ties are of varying ages, with a small percentage new, yet the track may still be able to carry trains of the size and speed anticipated when the roadbed was laid. Rails are replaced less on account of age than because of the constantly increasing weight of locomotives. It is obvious, then, that a large part of the railroad plant, though physically depreciated, may yet render good service. However, leaving out of account traffic conditions, it is obvious that the greatest commercial value of a road is when it is new; for even though it may operate at high efficiency for a number of years, without large replacements being made, the time is always drawing closer when replacements must be provided for, the prospect of which must inevitably affect the value of the property.

The third factor named, amount of service rendered, would probably furnish a fairly accurate test for estimating physical condition, but it would involve the preparation of units and standards of service for all the different parts of the railroad plant and equipment. The science of transportation is still in a stage of rapid change and development, and the great amount of research necessary to prepare such standards would probably not be justified by the result. And even though it were possible to tabulate the total work done (as, for instance, the individual mileage of freight cars, loaded and empty), other factors would have to be taken into account—inadequate repairs, bad operating conditions, over-loading, etc.

The next mentioned factor, wear and tear, corresponds most closely with depreciation, if we exclude the special losses due to wreckage, obsolescence, etc. Nevertheless, the rate of depreciation could hardly be made dependent on the physical condition of the equipment, because this would involve careful periodical inspection (although such inspection

could be made in connection with ordinary repair work). However, the rate could be adjusted approximately for different periods in the life of the equipment so as to vary somewhat with the average condition at various ages, taking into account also the heavier repair costs during later life. Thus, assuming salvage to supply 20 per cent of the cost and the average life to be 20 years, 5 per cent might be charged on freight equipment during the first five years of life, 4 per cent during the second five years, and 3½ per cent during the remaining ten years. Such a method would be fairly simple, and the rates could be made more accurate by keeping experience records.

The fifth factor named, age in proportion to estimated normal life, is the basis adopted under the accounting rules of the Interstate Commerce Commission. It is, of course, the simplest and most easily applied method of accruing depreciation. Nevertheless, the success of this method is dependent upon the careful determination of the average normal life for the various classes of equipment. The large variation in the rates charged by different railroad systems, is sufficient proof that very little study of this subject has been made.

Under the present scheme of accounting, the remaining elements of depreciation (extraordinary losses, increased cost of construction, and obsolescence), are provided for by the insurance and retirements accounts. Insofar as obsolescence involves increased expenditures, such amounts are chargeable to additions and betterments. It is, as a general rule, unnecessary to provide in advance for obsolescence, because the greater earnings derived from the improved facilities will permit the value of the abandoned property to be charged to profit and loss. Nevertheless, it would be safer to make some allowance for obsolescence in the rate of depreciation. So far as the writer is aware, the commission has never paid any attention to obsolescence in its accounting classification.

The problem of salvage or scrap value involves many unrelated factors, such as kind of materials used, condition of equipment when scrapped, efficiency in demolishing, new uses for scrap, market prices, etc. A large proportion of old equipment is not demolished, but is converted into work cars or sold to smaller roads. The percentage of salvage value is, like obsolescence, a very uncertain factor; but an error of 20 per cent in the salvage estimate would mean only about 5 per cent error in the rate of depreciation. The rules provide that in fixing the depreciation rate, the anticipated value retained as salvage shall be taken into account.

It is doubtful whether there is a single railroad in the country today whose rate of depreciation is based on a careful study of the actual physical depreciation of its equipment. Few, if any, of the roads have worked out the elaborate records or formulae which would be required if the insurance principle were faithfully carried out. In other words, the accounting rules promulgated by the commission have so far accomplished very little except to force a more or less conservative statement of income and surplus. And not only has the commission failed to bring about the adoption of uniform rates, but the accounting rules which it has provided do not encourage the adoption of fair rates of depreciation.

One of the main purposes of the depreciation accounts adopted in 1907 was to eliminate as far as possible the charges to renewals. The renewals account was retained in the 1907 classification (the title being changed to "retirements" in 1914) merely to "take up the slack" from the depreciation account. But the commission's rules for charging off equipment losses provide that only such portion of the lost value of the *individual unit of equipment* can be charged to the depreciation reserve, as has been accrued in the reserve for that particular unit. The difference between the value of the retired unit and its accrued depreciation is charged either to the retirements account, or to retirements and profit and loss. (The charge to profit and loss represents unaccrued depreciation in the early life of the unit before the company began to carry depreciation accounts). Suppose, for in-

stance, that a unit costing \$1,000, with salvage value of \$200, its anticipated life being 20 years, is retired in its 15th year: the rate would be 4 per cent, since $.04 \times 20 \times \$1,000 = \800 , the net loss. Assuming that the depreciation reserve had not been started until the fifth year of its life, the charge would be distributed as follows:

4 per cent unaccrued depreciation for first 5 years of life, charged to profit and loss.....	\$200
4 per cent depreciation, 5th to 15th years, charged to reserve	400
4 per cent depreciation, 15th to 20th years, charged to retirements	200
Salvage	200
	\$1,000

Under this accounting method there will always be heavy charges to the retirements accounts, since there is always a large proportion of the equipment retired before reaching the *average* age, and the depreciation rate is based on that age. The writer estimates that with a 4 per cent rate about 10 per cent of the value of retired equipment must always be charged to the retirements accounts; if the rate were 2½ per cent, at least one-third of the loss must be charged to retirements. At the same time, for a long period large charges must be made to profit and loss to cover unaccrued depreciation.

Rules Inconsistent in Application

The rules are thus seen to be inconsistent in application. If a fair rate of depreciation is charged so as to spread over the life of the equipment the estimated net loss, the rule operates so as to force almost double charges to the expense and profit and loss accounts during the early years, the result being to accumulate a large reserve which cannot be used as an insurance fund. Most of the railroads have therefore refused to apply a rate as high as the known approximate rate of loss. If the purpose of the commission was to force the roads to accumulate large reserves to represent the depreciated value of the property (in which case the reserves should not now be listed as an "unadjusted credit"), they should not have chosen such an indirect way of gaining this end, but should have directed the roads in 1907, or as soon thereafter as a rate of depreciation was adopted, to make a lump charge to profit and loss covering all of such unaccrued depreciation.

The published reports of the Interstate Commerce Commission do not reveal the amounts of the total equipment retirements for all United States railroads. Following are the charges to expenses for depreciation and for renewals or retirements of equipment since 1908, for Class I roads:

	Depreciation	Retirements
1908	\$47,534,000	\$10,037,000
1909	47,052,000	14,146,000
1910	49,641,000	18,134,000
1911	49,820,000	15,840,000
1912	51,147,000	19,976,000
1913	61,583,000	23,200,000
1914	73,737,000	17,547,000
1915	81,315,000	15,582,000
1916	88,395,000	24,158,000

The amount of retirements charged directly to profit and loss cannot be obtained; the "loss on retired road and equipment," first published in 1915, amounted in that year to \$15,211,000 and in 1916 to \$20,417,850, but it is impossible to determine what proportion of this amount represented equipment losses. Neither is it possible to discover how much is charged to the reserve each year. Although the amount of the accrued reserve of the operating roads has been published since 1911, the figure for the leased companies is not given separately from other "unadjusted credits." It is also probable that many roads have made appropriations to the reserve from profit and loss in addition to the amounts charged to operating expenses. In 1913, for instance, the reserve increased by about \$68,186,000, although the charges to expenses totaled only \$61,583,000. The matter is still further complicated by the fact that since 1914 small credits to the reserve from the depreciation accounts under maintenance of way and structures have been made.

From the best figures obtainable, it appears that of the

total equipment losses in 1915, \$15,582,000 was charged to retirements expenses, about \$15,000,000, or over, to the reserve, and perhaps \$5,000,000 to \$10,000,000 to profit and loss. This is in agreement with the theoretical conclusions formed above in regard to the effect of applying the commission's rules. The aggregate reserve for Class I operating roads is increasing very rapidly as shown by the following figures:

	Amount of reserve	Increase
1911	\$210,466,000	
1912	259,661,000	\$49,195,000
1913	327,847,000	68,186,000
1914	394,737,000	66,890,000
1915	464,677,000	69,940,000
1916 (fiscal year)	520,799,000	56,122,000
1916 (calendar year)	574,943,000	\$4,144,000*

*Represents an increase for six months.

With the low average rate of depreciation charged it will probably be twenty years or longer, under the present system, before the reserve will become stable (considering all the roads as a system). During this period the accounting procedure will continue to be so involved as to make it impossible to arrive at any fair conclusion from published figures in regard to either the policy of an individual road or the average condition for the whole country.

The Obvious Remedy

The obvious remedy for the fallacy in the commission's rules is to do away with the retirements and profit and loss equipment accounts altogether and use the reserve strictly as an insurance fund, charging the entire value of retired units to the reserve, and accruing depreciation on all equipment even though some units are past the normal age. The latter units would accrue more than 100 per cent of their value, but the excess would be required to offset the unaccrued depreciation on units retired before reaching the average age. Indeed, no attention would need to be paid to individual units, the credits to the reserve being based simply on the entire value of equipment in service, on the same principle as in writing group life insurance. The present reserves would probably furnish enough of a margin of safety, and if the rate was accurately fixed, they would remain nearly stationary, except as affected by the growth of business.

It is a fallacy to assume, as the commission has done, that an average rate of depreciation for *all the equipment* (or all the units of any class of equipment) can be determined upon, and such a rate successfully applied to the *individual units of equipment*. Either a separate rate should be adopted and applied to each unit, based on its individual condition; or a general average rate should be taken and applied to the equipment *en masse*. To combine the two methods, as is done under the present rules, leads to complex accounting and confused results.

The classification permits, but does not require, the use of a separate rate of depreciation for each individual unit; this, however, involves so much labor, that it has evidently been found impracticable by the railroads. The alternative, then, is simply to apply a given rate of depreciation to each class of equipment, or to the equipment as a whole, on the same plan that a life insurance company writes group insurance for thousands of men in a factory. The growth of the reserve will then furnish a simple test of the adequacy of the rate.

The railroads of the United States, while they have not perhaps clearly recognized the principles involved, have learned by experience that it is impracticable to charge a rate of depreciation corresponding to the facts of physical wear and tear and loss due to obsolescence. It is to be hoped that the director general and the Interstate Commerce Commission will take cognizance of this situation and revise the rules so that the railroads will be encouraged to undertake a scientific study of depreciation. It is probable that some attention has already been given to the problem in connection with the

framing of the operating contracts, but no details are yet available as to the method to be adopted for protecting the value of railroad properties during the period of government operation.

Advertising Under War Conditions*

By Val Fisher

Publisher, London, Eng.

OME WONDERFUL THINGS have happened in advertising, through war conditions, and I want to touch on some of those things, that you may be prepared for the conditions that will probably arise as the war goes on. In the last four years the business men of Great Britain have learned more concerning the importance of building good-will through advertising than they did in the forty years preceding the war.

British manufacturers who have not a dollar's worth of merchandise to sell, whose entire plants are employed on government work, are keeping their advertising continuously before the public, because while they are perfectly willing to turn their profits over to the government, while they are perfectly willing for the sake of winning the war to have their factories commandeered and their normal business completely stopped, yet they are not willing to sacrifice their good-will; they are not willing to have their names or their products forgotten.

And so they continue their advertising, continue building their good-will, so that when the war shall be won there will be an immediate demand for the billions of dollars' worth of merchandise that their greatly enlarged factories will then turn out.

This is a time when every manufacturer, every business man, should look far ahead. Good-will cannot be built in a day, even by advertising. The war will not last always. We have all seen the mistake of being unprepared for war; it is almost as great and serious a mistake to be unprepared for peace.

What are you going to do with your acres and acres of enlarged factory space now employed in the making of war products all over America, if you don't build good-will now for the goods you are going to make when the war is won? How are you going to keep the smoke coming out of your factory chimneys after peace is declared, if you don't keep your name constantly before the public now, and build a demand for your peace-time products that will insure a satisfactory business the minute you stop making munitions or other war supplies?

The war has taught the manufacturers and business men of Britain that advertising is not only the least expensive way to sell goods, but that it also has the far more important function of building good-will—a good-will whose benefits, especially in critical times, can hardly be measured. British business men have also learned that advertising can be used in time of war to stop the sale of their goods, and at the same time retain and even increase the good-will of the public. In a few cases British corporations have realized when it was too late, and after irrevocable damage was done, that advertising would have saved them.

Moreover, you Americans must not forget your opportunities for foreign trade. Millions of people in Great Britain and France and Italy and Central and South America will be looking to you for American-made goods when the war is over. Those of you who are best prepared, those of you whose good-will is most firmly established, will reap the greatest benefit.

*From an address made in New York. Mr. Fisher is a member of the London Chamber of Commerce and an associate member of the American Chamber of Commerce of that city.

The Roadmasters 36th Annual Convention

Abstracts of Committee Reports and Papers Presented at the Meeting Which Was Held This Week in Chicago

THE THIRTY-SIXTH ANNUAL CONVENTION of the Roadmasters and Maintenance of Way Association was held at the Auditorium hotel, Chicago, on Tuesday, Wednesday and Thursday of this week. The sessions were characterized by unusual interest in the reports and papers, which were prepared particularly in view of conditions confronting track men at the present time. The session on Tuesday was devoted to discussions of various phases of the material problem, while labor was the principal theme on Wednesday.

The officers of the association during the past year were: President, A. Grills, general roadmaster, Grand Trunk, St. Thomas, Ont.; first vice-president, J. B. Oatman, roadmaster, Buffalo, Rochester & Pittsburgh, DuBois, Pa.; second vice-president, J. W. Powers, supervisor of track, New York Central, Rochester, N. Y.; secretary, P. J. McAndrews, roadmaster, Chicago & North Western, Sterling, Ill.; treasurer, Coleman King, supervisor, Long Island, Jamaica, N. Y.

The convention was called to order at 9:30 Tuesday morning with over 350 roadmasters in the room. In his opening remarks President Grills placed special emphasis on the fact that the convention was to be considered a war council of the trackmen of American railroads for the purpose of discussing war-time problems of track maintenance and that the discussion was in no sense limited to members of the association.

A particularly fortunate circumstance in this opening session was the presence of three regional directors of the Railroad Administration, namely Hale Holden, director of the Central Western region; B. F. Bush, director of the Southwestern region and B. L. Winchell, director of the Southern region. Each of the directors was called upon to speak, the trend of the remarks in each case being the relation of the men who help to maintain and operate the railroads in this country to those other men who are "over there."

Mr. Winchell gave a brief review of present railway conditions and urged the men in his territory to study the manner in which the problems are solved on other roads in order that they may be able to put into effect on their districts such practices as prove to be most suitable. He also placed special emphasis on the necessity for the men who are "over here" to do their maximum to help the men "over there."

Mr. Holden pointed out the purpose of the present meeting as a means for the study of the war problems. He called attention to the necessity of maintaining the railway machine in the best possible condition for winning the war and that in this connection it is necessary to keep skilled railroad men in this country. While he admired the spirit of the men in waiving exemption from service, he believed it was of extreme importance that such exemptions be obtained for the good of the railroads. He urged an enthusiasm in the operation of the railroads in their present status, and asserted that any considerations as to the relative merits of private or government operation are entirely out of place at the present time, and further the matter of the ultimate disposition of the railroads can be deferred until the period of readjustment after the war.

The necessity for salvaging scrap and all unused material was the keynote of Mr. Bush's remarks, which he illustrated by the results secured in the past two years by the Missouri Pacific, a line of 7,000 miles on which \$600,000 worth of track scrap has been accumulated annually. He described the methods adopted to recover and return much of this material to service.

Conservation of Track Materials

A large number of rails are permanently damaged in track because the maintenance forces are unable to take care of them properly, with the result that they are battered and chipped at the ends. On a number of roads these rails are taken out of track, 18 in. is sawed off each end and the rails are redrilled and used again on branch lines. The average cost for this work, including labor, sawing, drilling, oil and saw blades, is approximately 40 cents per ton. The committee recommends this as good practice.

Cracked angle bars can be welded by the acetylene gas process and used again. The cost of this work is from \$1.50 to \$2 per pair. We believe that it would be better economy to scrap the defective angle bars than weld them. Worn and bent joints can be straightened and built up for 20 cents per joint and used again. The bar is heated in an oil furnace, placed in a die and swaged under a drop hammer. In this manner the bar is swelled to its original section by the addition of pieces of steel $1\frac{1}{8}$ in. by $\frac{1}{8}$ in. thick, placed in the center of the bar.

A large number of usable track bolts can be recovered wherever rail is being renewed, if they are oiled before renewals are made. Bolts which are recovered and used in sidings and industrial tracks have an approximate life of eight years.

Old track spikes can be straightened and used again in sidings and industrial tracks at a cost of not to exceed 70 cents per 200-lb. keg. There are a number of different ways of straightening old spikes, but the most approved way and the one recommended by the committee is with a press where from two to four spikes may be straightened at a time. This is a decided advantage over other methods on account of bringing the head back to its original position, where, with the hand method or trip hammer, it is impossible to straighten the heads up.

Worn switch points can be made use of in several different ways: (1) By cutting off a sufficient amount of the worn point and replanning it; the cost of labor for this method is not less than \$20 per switch. (2) The worn point can be built up by the acetylene gas process at an approximate cost of \$2.25 per point, but a point so built up should only be used in sidings.

Worn and broken frogs can be repaired at a large saving over the cost of new frogs. To repair these frogs in the shops costs considerably more than by the acetylene gas process. To repair a 90-lb. spring rail frog in a shop with bolts, rivets and new spring rail, including labor and price of rail, will cost \$70. A new frog of this kind costs \$160. A No. 9, 100-lb. spring rail frog with new short points, bolts and rivets, including labor, will cost \$45 to repair. The cost of a new frog is \$152. Rigid frogs can best be repaired with the gas process at approximately the following cost: New point and both wing rails built up and bolted, including the gas and labor charges, from \$12 to \$14 per frog, and by shop process \$25; saving by the gas process \$13 per frog, with the additional advantage that the frogs can be built up under traffic, if necessary, at a slight additional cost.

No tie plates should be discarded as scrap unless they are entirely unfit for further use, but they should be made use of on storage tracks and industrial sidings. Plates of heavier section can be repunched and used on lighter sections of rail to prevent rails cutting into the ties. This conserves ties.

To conserve ties in track they should be inspected in ac-

cordance with the association's recommended practice. Ties removed from track should be carefully sorted and those fit for sidings or temporary tracks piled separately. Ties fit for fuel should either be disposed of to company employees or to outside parties to be used for that purpose, or they can be loaded and used for engine fuel at a cost of 3 cents per tie for loading and 2 cents per tie for unloading. Good use of track and switch ties can be made for cribbing and docking. No old ties should be burned except those which are absolutely worthless for any other purpose.

J. B. OATMAN, roadmaster, B. R. & P., DuBois Pa., chairman.

DISCUSSION

The reclamation of rails by resawing drew forth a most enthusiastic and interesting discussion, and after attention had been called by William Shea (C. M. & St. P.) to the practice of rerolling rails, the discussion took somewhat the form of a debate on the relative merits of resawing and rerolling. In answer to a question by James Sweeney (C. & E. I.) W. P. Wiltsee (N. & W.) gave an extended account of the method of resawing rails in use on the Norfolk & Western during the past 18 years. In discussing the use of rerolled rails, special emphasis was placed on the necessity for matching the rails carefully by gaging before placing in track. P. J. McAndrews (C. & N. W.) said that this problem could be greatly simplified by carefully grading the rails before sending them to the mill, taking special care to see that the lots of rails shipped in by the various roadmasters were not mixed up, in shipments.

H. R. Safford (U. S. Railroad Administration) called attention to the fact that a simple calculation is not always possible in comparing the relative merits of two things or two different processes, that the question is really an economic one, that is, a matter of measuring the good to be obtained against the relative cost. He pointed to the fact that it is not always good practice to reroll rails that have been given extensive wear since this will necessitate rerolling to such a cross section as to make the rail too light for any but minor traffic. In many cases resawing would suffice although where conditions will warrant rerolling will produce much better results.

W. F. Jones, general storekeeper, New York Central, discussed in detail methods of repairing and reclaiming materials. He suggested that small roads without central reclamation plants should send materials to central plants on large roads for reclamation. He urged the Roadmasters Association to appoint a committee in each region to study and recommend reclamation methods.

E. B. Temple, engineering assistant to Regional Director Markham, Allegheny district, emphasized the importance of reclaiming scrap as fast as possible because of the imperative need for materials. He told of the attention that the Railroad Administration is now giving to the collection of all scrap and said that we have now come to a point where the roads must prepare to reclaim much more material than formerly.

M. Griffin, Central Railroad of New Jersey, described the practice of that road in collecting all bolts with defective threads found in renewing rails and sending them to the shop to be rethreaded and returned for use. Renewal of worn switch points was discussed extensively.

J. B. Baker, Pennsylvania, told of experience with several hundred switch points reclaimed by the oxy-acetylene process in the last 18 months. There had been a few failures but the condition after failure was no worse than the condition before renewal was made. Renewed switches are used in main track but he suggested that the roads should be conservative as to this. Different members suggested that from 10 to 30 days were necessary to train men to do this work.

P. J. McAndrews, Chicago & North Western, stated that he

repaired all frogs by the oxy-acetylene process since better results can be obtained than to wait until the frogs are worn too much. T. Thompson, Santa Fe and others stated that manganese frogs are not successfully repaired.

Discussing the conservation of crossing planks, several members testified to the use of concrete slabs. William Muff, Santa Fe, uses brick creosoted blocks on concrete foundations. The scrap problem was discussed in detail.

On inquiry as to the delay of trains in sorting scrap, J. B. Oatman said that most of this was done while the train moved between stations. H. Van Gorder, Chicago & North Western, suggested that a train once a month was too often and would cost too much, but William Shea, Chicago, Milwaukee & St. Paul, said this was a war measure and it made no difference how much it cost to collect the scrap. It must be done if the government needs material.

Right of Way Fences

A right-of-way fence is as necessary as any other unit that goes to make a railroad, and its proper maintenance is as essential as the upkeep of other parts of the property. A dilapidated fence is not only ugly in appearance, but its condition increases the risk of accidents. For food conservation it is of utmost importance that the railroads keep their right-of-way enclosures in the best condition to prevent any accidental killing of stock. The cost of maintenance as compared with the amount of stock claims paid should not be considered at this time. Instead, the most thoroughly preventive measures should be taken to conserve the supply of live stock.

Wooden posts, especially cedar, seem as yet to be the most favored, but the increasing scarcity of timber will eventually eliminate this kind of posts. Round and split posts are being used, but the round post is preferable because the split post exposes the heart and thereby causes decay and the dry rot formed will easily catch on fire. Iron posts are on the market and are used to some extent, but it seems to be the opinion that they will rust off quickly at the ground surface.

Concrete posts are being manufactured and used to a considerable extent. The initial price of the concrete post and the cost of installation are somewhat higher than for the wooden post, but considering its lasting qualities it is undoubtedly the most economical. A well reinforced concrete post should last forever, as fire, water and climate do not affect it. The round post is preferable, as the corners of the square post will chip off and weaken it. Railroads may make their own posts by installing plants at points where sand and gravel are available.

For general right-of-way fencing the posts should be 7 ft. long. Some railroads are using an 8-ft. post at corners and gate openings, but it seems that a 7-ft. post is of ample length even for that purpose when properly anchored and braced. The 7-ft. post should be set 2 ft. 6 in. in the ground. In swampy or wet ground the post should be tapered at the lower end and driven into the ground with a wooden mallet instead of digging holes by auger or digger. The posts should be placed one rod apart except at corners and gate openings, where they should be placed 10 ft. apart.

Through large towns and other places where appearance is to be considered and also to keep off trespassers, a 10-ft. post is recommended, placed 4 ft. in the ground and 10 ft. apart.

A combination barb and woven wire fence is recommended with (1) a barb wire at the ground followed by a 28-in. woven wire and with three strands of barb wire at the top. (2) a barb wire at the ground followed by a 50-in. woven wire and one strand of barb wire at the top. For use at station grounds where posts are set 6 ft. above ground, a 58-in. woven wire with one strand of barb wire at the top is good practice. When posts are set one rod apart, a stay of heavy wire should be placed in the middle of the panel.

The anchoring of a fence is one of the vital factors in its permanence. The methods of anchoring vary considerably, but when wooden posts are used the following is recommended: The posts at corners and gate openings should have as anchors two pieces of 2-in. by 4-in. by 16-in. pine lumber securely fastened to the post, one at the lower end of the post and the other 12 in. higher. In addition, the posts at corners and gate openings should have a wooden brace 4 in. by 4 in. gained into the corner post 12 in. from the top and into the second post 24 in. from the ground, well spiked to the posts. As counter brace use two strands of No. 8 wire, twisted until it becomes a hard and taut cable.

At sudden or abrupt changes of the ground along the fence line where posts are liable to pull out, two 2-in. by 4-in. by 16-in. anchors should be fastened to the lowest point of the post. Instead of using the wooden anchors at corners and gate posts, whenever practicable it is recommended that these posts should be placed in concrete 24-in. square and 8 in. below the lowest part of the post.

C. NEWBERG, roadmaster, C. & N. W., Chicago, chairman.

DISCUSSION

Chairman Newberg amended the report by adding a description of some steel posts that have had considerable use with material economy in cost of installation. Several speakers told of the successful use of steel posts which had been in service from six to nine years. Special emphasis was placed on the ease of installing these posts. One speaker told of 125 miles of concrete posts used in his district which were set in 1913; a few were broken by rough handling. The report was amended to recommend the use of posts longer than seven feet where required.

Labor-Saving Devices

The success of labor-saving devices is dependent to a great extent upon the energy and ability of the operator. An over-supply of labor-saving devices is perhaps as detrimental as a shortage of such devices. The committee recommended that roadmasters consider well before advocating the purchase of heavy and expensive machines, as it is possible that such purchases may not be justified in view of their cost. It also recommended the importance of securing power-driven appliances which are capable of doing many different kinds of work so as to keep the machines in constant use.

No tool furnished to the track forces in recent years made its appearance at a more opportune time or filled a greater void than the power-operated tie tamper. It is the observation of the committee that the work is more uniform and better than in the case of track tamped by hand, especially since we are getting such a poor class of labor. A tamping machine is of particular value around frogs and switches, water pans, tunnels, etc., as it is possible to tamp with it in places which cannot be reached by a tamping bar or pick. Experience during the four years this machine has been in use teaches that, under normal conditions in the northern states, each machine will be used during the season to tamp about 20,000 ties.

As much new rail is received in high side coal cars, it has become necessary that some mechanical device be used for unloading it. The constant demand for the quick release of cars, the high cost of work trains and the few hours of actual work possible on a line of heavy traffic requires a device that will work rapidly with a maximum factor of safety for laborers. There are rail handling machines in use which are capable of loading or unloading two cars of rail at the same time. Nine men are required for the operation of these machines, one to operate hoists and four men to each car of rails. The machine is operated by air from the train line. Such machines will unload rails more quickly

than could be accomplished by 40 men by hand and without damage to rails or injury to men. Thus a saving of 31 men per day is made possible. This machine can also be equipped with tongs to load or unload as many ties with three men as can be loaded or unloaded by 20 men by hand.

The committee recommends the use of rail laying machines, especially where rail is of a heavy section, thus relieving tong men for other work, the number released depending on the weight of the rail to be handled. To obtain the best results by the use of such a machine, care should be used to unload the rails as near as possible opposite where they are to be laid.

The majority of the committee are in favor of the use of motor cars, particularly on lines of light traffic where the length of sections is such as to warrant their use. Therefore it is the opinion of the committee that the economy in the use of motor cars decreases in proportion to the number of main tracks, which in turn shortens the length of sections. Perhaps the best argument in favor of these cars is in the fact that thousands of them were bought by the men themselves to avoid the drudgery of hand cars. The use of motor car mowing machines, weed burners and chemicals to destroy weeds are of great value in some territories.

On divisions where much ditching must be done by work trains or wheelbarrows, teams with scrapers have been tried with good results and very little labor has been needed. Dirt can be handled in very short cuts, at the ends of cuts and across the track for 20 to 25 cents per yard and it can be hauled 500 to 600 ft. for 50 to 60 cents per yard (with teams at 80 cents per hour and labor at 25 cents per hour).

Where conditions permit mowing the right-of-way with teams and mowing machines, the work can be done by machinery much cheaper than by manual labor.

When heavy ditching has to be done the use of steam ditchers is recommended, together with at least two 16 to 20 yd. side dump cars and a spreader car for short hauls. For a longer haul from four to six side dump cars should be used. A light engine can be assigned to this work. With an outfit of this kind, which includes a train crew, ditcher engineer and fireman, dirt can be handled for 10 to 25 cents per yard, according to the length of the haul. Through long usage the steam ditcher and spreader, especially when the latter is operated by air, have reached such a high state of efficiency that they are practically indispensable and the fact that they can be used for many different varieties of work places them among the most important labor-saving devices of the present time.

A saving of at least 60 per cent over that of manual labor is obtained by using a No. 3 crane for removing ballast from between tracks, preparing for stone ballast, digging drains under tracks, unloading old ballast on fills, strengthening shoulders and filling up holes, loading and unloading rails and for various other purposes.

In rail laying a two-wheel pony car is very handy for distributing spikes, bolts, angle bars, tie plates and even scattered rails. Where a heavy rail is to be replaced in track by a small gang, a pony car makes it possible to load rail and move it to the point where it is needed without sending for additional help or using a flag to get the rail into place. It is also useful for handling ties. With a dump box these cars are very handy for distributing the surplus gravel or stone ballast.

J. W. Powers, supervisor, New York Central, Rochester, N. Y., chairman.

DISCUSSION

Much interest was shown in the records of pneumatic tampers. Many reported successful use of these machines for both surfacing and spotting.

The latter requires frequent moving of the machines

They may be used successfully in any ballast in which pick or tamping bar is used. Skilled workmen are required to secure the best results with trained gangs and good mechanics to look after the maintenance of the machines. Machine tamped track stays up much longer than hand tamped work.

The Best Method of Lifting Track

A report was presented on this subject which outlined the advisability of preparing a complete schedule of work and described the procedure which should be followed in putting the ballast under the tracks. The report was confined largely to detailed suggestions for the conduct of the work and concluded with recommended organizations for gangs of 65 and of 80 men. The report was presented by George Beckingham, superintendent of track, Grand Trunk, Montreal, Que., chairman.

The Government and the Railway Labor Situation

By M. G. Kibbe

In Charge of Railway Division, United States Employment Service, Chicago

The United States Employment Service has undertaken the task of recruiting man power for the most essential service. The railroad division has been organized for the recruiting of all classes of railroad labor. Unfortunately we were slow in starting. The wage was low and when the first call was made for common labor at a higher wage by the government it drew more heavily from the railroads than from non-essential industries. A great effort is now being made to correct this evil. The railroad wage has been increased to compare more favorably with the increased cost of living. The long haul or transportation of labor from one part of the country to another is also being discouraged.

The recruiting of labor at so much per head is being abolished. Fee agencies, a most distasteful practice, must no longer exist. When we need men so badly why should they be asked to pay for an opportunity to work? The government asks for your assistance and co-operation to the extent of placing your orders for men with this branch of the service. Each state has its federal director of employment, and this officer must know how many men you need, as otherwise his powers in drawing from non-essential industries will be of little benefit.

You say you need men and need them badly. How many do you need? They cannot be gotten in a day, and the only way to get them is to make your wants known that they may be requisitioned from candy stores and ice cream parlors and put to work. The time has come for action, not only on the field of battle, but at home. The railroads are suffering for men and they must have them.

At present we are looking to the Mexican for relief, more especially in the Southwest, but Mexicans are always an unknown quantity and undependable. Congressional assistance has been granted but men have been held back on the other side of the border by the political trickster for pecuniary advancement. Avery Turner has been appointed by the Railroad Administration and sent to the Mexican border to assist in the importation and distribution of Mexican labor. By co-operation with the U. S. Employment Service and the U. S. Immigration Service it is hoped to straighten out the tangle and get more men. Should the situation be cleared up the southwest territory can be supplied during the winter months and in the spring we can ship to northern roads.

Most of you are complaining of a shortage of all classes of help, but to go back to the old methods at this time will bring no relief. The old method was to get men through foul means or fair, to induce them to leave one road for

another, to promise them something they were not getting and often these promises were not fulfilled. It mattered not to the agency recruiting, as all it was looking for was the fee of so much per head. The biggest rascal reaped the greatest harvest while both roads and men suffered. The opening of more competitive offices by individual roads will not increase man power.

The increased wage with better housing conditions and better food will induce a higher class of workers to enlist in this class of work. Physical requirements are necessary. Too many down and outs, not capable of doing a day's work, have been recruited for track work in the past.

A clearance section has also been established. This department or branch of service makes a complete tabulation of all labor recruited in each state, and these reports go to the general clearance division at Washington. In this way it is possible to ascertain how much labor is furnished by each state; and you can readily see how essential it is that the state director be furnished with these reports promptly. No accurate account can be given unless all report through the same channel. Each state has been given its quota, an estimated number based upon its population and its former record, and as this record has been incomplete no doubt these figures or percentages will have to be adjusted from time to time.

Chicago has been drained to such an extent that it is absolutely impossible to ship as many men to other states as have been shipped in the past, unless many non-essential industries are closed. This part of the service will be looked after by the war industry and community boards which have already been established. It is their duty to decide what are essential and what are non-essential. This is by no means a pleasant duty to perform. It will work a hardship upon some, but we need their energy and their brains in more important lines. The factories are needed for the manufacture of war essentials.

The United States Employment Service was organized the early part of this year as a branch of the department of labor with only a small appropriation but it has grown to such mammoth proportions that the whole country is depending upon it for service. It already has established some 600 distinct recruiting offices; it no longer suffers for lack of funds and its usefulness to both employer and employee is no longer questioned. Our records show that we are recruiting about 12,000 men per month in Chicago for the railroads alone and we need twice that number. I am satisfied that if the East was as well organized as the West we would not be called upon to supply eastern roads. More skilled labor is required in the East on account of so many war industries being located in that territory, but I anticipate that much of the common labor that has been shipped East will soon drift back into this territory.

Other Business

A paper read by C. W. Gennett, Jr., manager rail inspection department, C. W. Hunt Company, Chicago, on Common Defects in Rails and Means of Detecting Them in Track, will be published next week.

Labor conditions were discussed and the results secured in holding men by improved housing. Some roadmasters reported holding 90 per cent of the normal force; others said such measures are of little avail if higher wages are paid by nearby industries.

The Track Supply Association

The seventh annual exhibit of the Track Supply Association was held in a room adjoining the convention hall, approximately 50 firms being represented. The display this year was characterized by the practical nature of the individual exhibits, the various manufacturers emphasizing those devices of a labor-saving character.

The officers of the Track Supply Association during the past year were: President, E. T. Howson, western engineering editor, *Railway Age*; vice-president, J. J. Cozzens, Union Switch & Signal Co., New York; secretary-treasurer, W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y.; directors, F. A. Barbey, Frictionless Rail Co., Boston, Mass.; Edward Coleman, American Hoist & Derrick Co., St. Paul, Minn.; Ex-officio, R. A. Van Houten, Sellers Manufacturing Co., Chicago.

The names of the exhibitors together with the products exhibited and the names of the representatives in attendance, follow:

Air Reduction Sales Company, New York.—Oxygen gas, acetylene gas, hydrogen gas, nitrogen gas, welding and cutting apparatus, welding rods and supplies and acetylene generators. Represented by R. T. Peabody, E. M. Sexton, W. R. Campbell, Wm. McCarthy, Ray Sossong and Ellsworth Mills.

American Hoist & Derrick Company, St. Paul, Minn.—Transparencies and photographs of "American" Railroad dumper. Represented by Edward Coleman and C. T. Hook.

American Steel & Wire Company, Chicago.—Railroad fence, woven wire fence and American steel fence posts. Represented by L. B. Shanahan, F. J. Hindmarsh, J. W. Collins, A. N. Frouds and W. E. Evans.

American Valve & Meter Company, Cincinnati, O.—Anderson economy and Buckeye switch stands for yard and main track switches. Represented by J. F. McGarry, Dan C. Higgins and F. C. Anderson.

Anchor Company, Chicago.—Anti-rail creepers, efficiency and welded types. Represented by F. B. Bowman, Orlando Metcalf and Geo. H. Chadwell.

Balkwill Manganese Crossing Company, Cleveland, O.—Licensors, controlling Balkwill patents on manganese railway crossings. Represented by S. Balkwill.

Bethlehem Steel Company, Bethlehem, Pa.—New Century switch stand, switch stand model 1217, Steelton positive switch stand model 52-A. Represented by R. E. Belknap, R. W. Gillispie, Neil E. Salsich and J. F. Hennessy.

Carbic Manufacturing Company, New York.—Carbic flare lights and carbic cakes. Represented by G. B. Van Buren, T. J. Hegland and W. H. Norden.

Chicago Malleable Castings Company, Chicago.—Thomas rail anchor tie plates. Represented by J. S. Lewellyn, O. Lutz and W. M. Osborn.

Crerar, Adams & Co., Chicago.—Eureka bonding drills, Calumet track drills, jacks of all kinds. Represented by E. C. Poehler, C. W. Gregory, W. I. Clock, G. D. Bassett, J. A. Martin and Russell Wallace.

The Duff Manufacturing Company, Pittsburgh.—Barrett track jacks, automatic lowering geared ratchet and ball bearing jacks. Represented by C. N. Thrall and G. E. Watts.

Fairbanks, Morse & Co., Chicago.—No. 41 light inspection car, equipped with two-cylinder kerosene engine. Represented by E. C. Golladay, Benjamin S. Spaulding, L. H. Matthews, F. J. Lee, C. B. Skelton, W. B. Lewis and F. M. Condit.

Fairmont Gas Engine & Railway Motor Car Company, Fairmont, Minn.—Hand car exhibition engine. Represented by W. F. Kasper.

Hauck Manufacturing Company, Brooklyn, N. Y., Chicago.—Hauck kerosene burner thawing outfits, steam thawing outfits. Represented by Willis C. Squire, G. A. Nelson and A. Busch Hauck.

Hayes Track Appliance Company, Richmond, Ind.—The Hayes derails and stands, including the Model H derail, the Model EX derail, and a simplified form of operating stand. Represented by S. W. Hayes, R. W. Slaughterback and T. Carpenter.

Ingersoll-Rand Company, New York, Chicago.—Imperial tie tamping equipment and air operated track tools. Represented by Wm. H. Armstrong, Chas. Dougherty and C. W. Melcher.

Lackawanna Steel Company, Lackawanna, N. Y.—Rail joints, safety head angle bar, Abbott joint plates, hook shoulder tie plates, anti-rail creepers and key bolts for track appliances. Represented by Arthur P. Van Schaick, Jay L. Hench, F. E. Abbott and G. O. Benson.

Luther Grinder Manufacturing Company, Milwaukee, Wis.—Power grinders, foot power grinders to replace grindstones, hand power grinders to grind twist or flat drills and miscellaneous tools. Represented by C. R. Pfeifer, F. S. Hyland and J. D. Suter.

The Madden Company, Chicago.—Illustrations three-men rail layer, Veerac motor car, Harris-Muff ballast screen, models of Wagner switch point straightener, Richter blue flag derail, red top fence posts and Blair tie spacer. Represented by H. C. Holloway and T. D. Crowley.

The Alexander Milburn Company, Baltimore, Md.—Portable carbide lamps, Milburn oxy-acetylene welding and cutting apparatus. Represented by S. B. Moats and C. R. Pollard.

Mudge & Co., Chicago.—Mudge Class E-6-K kerosene inspection motor car. Represented by Burton W. Mudge, Robert D. Sinclair, Karl J. Eklund, Robert Deeming, Albert C. Force, Fay E. Posson and Jean K. Vanatta.

National Lock Washer Company, Newark, N. J., Chicago.—Nut locks. Represented by R. L. Cairncross and A. T. Thompson.

National Malleable Castings Company, Cleveland, O.—Rail anchors, rail braces and tie plates. Represented by T. W. Aishon, J. J. Byers and L. S. Wright.

P. & M. Company, Chicago.—P. & M. Henggi, Vaughan, Ajax, rail anchors, bond wire protectors. Represented by John Ritchie, John Reagan, George E. Johnson, J. E. Mahoney, F. W. Reeve and P. V. Samuelson.

Pocket List of Railroad Officials, New York.—Represented by J. Alexander Brown, Charles L. Dinsmore and Harold A. Brown.

Positive Rail Anchor Company, Marion, Ind.—Rail anchors, Fallon girder type guard rail brace and plate, Busse guard rail. Represented by Arnold H. Told, J. A. Shoultz, L. C. Ferguson, Alva M. Bogue and E. A. LeBeau.

The Q & C Company, New York, Chicago.—Bonzano rail joint, special guard rail clamp, universal guard rail clamp, Bonzano rolled steel step or compromise joint. Freeland derails, Sampson rail bender. Represented by B. L. Barber, Bernard McGowan, A. R. Horn and J. V. Westcott.

The Rail Joint Company, New York, Chicago.—Standard compromise frog and switch and insulated rail joints. Represented by W. S. Boyce, J. P. Norton, G. Jenkinson, G. H. Larson, Alex, Chapman, R. W. Payne, E. L. Van Dresar and V. C. Armstrong.

Railroad Supply Company, Chicago.—Tie plates, derails. Represented by A. H. Smith, H. G. Van Nostrand and E. H. Bell.

Railway Maintenance Engineer, Chicago.—Represented by L. B. Sherman, E. T. Howson, W. S. Lacher and H. H. Simmons.

Railway Review, Chicago.—Represented by Willard A. Smith, Harold A. Smith, J. E. Gougeon, Charles L. Bates and W. M. Camp.

Ramapo Iron Works, Hillburn, N. Y.—Manganese switch point, rolled steel double shoulder switch slide plate, special switch slide plate $\frac{3}{4}$ in. by 7 in., machine heel plate, switch stands, guard rail clamps. Represented by Thomas E. Akers, Arthur Germunder, J. B. Strong, J. Edgar Davidson and W. C. Kidd.

Reading Specialties Company, Reading, Pa.—Guard rail clamps, rail benders, rerails with clamps, trolley rerails, compromise joints and derails. Represented by B. John Buell and R. J. McComb.

Rodger Ballast Car Company, Chicago.—Improved operating device for improved Hart convertible cars. Represented by H. S. Hart, J. O. Neikirk, W. J. Hosseit and W. E. Morey.

Sellers Manufacturing Company, Chicago.—Sellers anchor bottom wrought iron tie plate. Represented by J. M. Sellers, G. M. Hogan, R. A. Van Houten and R. J. Platt.

Southern Railway Supply & Equipment Company, St. Louis, Mo.—Saunders car stopper. Represented by W. D. Achuff and L. Boswell.

Track Specialties Company, New York, Chicago.—Trasco anchor plate, Trasco guard rail clamp, superior compromise rail joint, superior derails, superior rail benders, tie plates, rail braces, Trasco guard rail brace adjustable track shim, slide plate and switch brace and rail joints. Represented by J. A. Bodkin.

United States Switch Company, Eau Claire, Wis.—Model of automatic switch lock. Represented by J. W. Hubbard.

Union Switch & Signal Company, Swissvale, Pa.—Keystone insulated rail joint. Represented by J. D. Roett.

Verona Tool Works, Pittsburgh, Pa.—Track tools, track jacks, levels, gages and nut locks. Represented by H. C. Mull, E. L. Ruby and E. Woodings.

William Wharton, Jr. & Co., Inc., Easton, Pa.—Literature on guard rail frogs and crossing layouts, switch rods and rail clamps. Represented by H. F. McDermott, Charles M. Griffith, J. H. Hock, S. G. Llewellyn and Malcolm Imbrie.

Wyoming Shovel Works, Wyoming, Pa.—Red Edge track shovels. Represented by H. T. Potter, H. C. Emery, G. E. Geer and A. R. Wren.

At the annual meeting of the Track Supply Association on Wednesday morning the following officers were elected: President, Ed. Coleman, American Hoist & Derrick Company, St. Paul; vice-president, W. H. Armstrong, Ingersoll-Rand Company, New York; secretary and treasurer, W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y.; directors, J. V. Westcott, Q and C Company, Chicago, and D. T. Hallberg, P and M Company, Chicago.

EXPORTS OF RAILWAY SUPPLIES FROM ENGLAND for the first six months of the present year, according to the British Board of Trade, were as follows, the corresponding figures for 1917 being given in parentheses: Locomotives, \$3,962,130 (\$3,710,795); cars, \$2,795,385 (\$1,695,290); rails, \$1,495,945 (\$1,572,165).

THE INDIAN WAR LOAN.—The Great Indian Peninsula Railway has adopted a novel method for advertising the new Indian War loan. Notices in English and vernaculars "Help the Empire and buy the war loan," have been printed on the ceilings of cars of a local service train running between Bombay and Kalyan.—*Indian Engineering*.

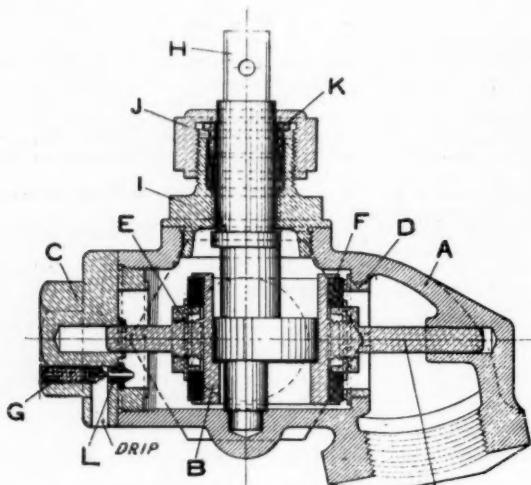
RESTRICTED HOLIDAY TRAVELING IN ENGLAND.—In order to relieve the congestion on the railways during the busy holiday season in England, leave for troops will not be granted if it necessitates railway traveling on Saturdays, Sundays or Mondays. The instructions apply to cadets in officers' training schools.—*The Engineer, London*.

FIRE DAMAGES TO AN ENGLISH RAILWAY.—Damage estimated at \$750,000 was done by a fire which broke out on August 11 in the electric train sheds of the North-Eastern Railway at Heaton, Newcastle, England. Thirty-eight electric coaches and the sheds covering $2\frac{1}{4}$ acres of ground were completely destroyed. Fifty-three coaches were taken out undamaged.—*Railway Gazette, London*.

Steam Heat End Valve with Automatic Drip

IN RELIEVING the condensation at the rear end of passenger train heating lines the general practice has been to open the end valve slightly. This, however, has not proved satisfactory and many different schemes have been devised to take care of this drip automatically. All of these have been arranged to drain through the hose and have frequently caused freezing and decay of the hose. The Gold Car Heating & Lighting Company, New York, has recently developed a new end valve, known as the Acme valve No. 1126, in which the drip is automatically relieved through the valve itself, thus eliminating the continual dripping through the hose.

Referring to the sectional view of the valve, it will be



Sectional View of the Acme End Valve

seen that it is of the piston type, similar to existing Gold end valves. In this case the piston is double seated with a composition seat at each end. When the valve is closed, piston *B* is forced to the right by the cam on spindle *H*, thereby automatically opening the drip-port. When the valve is in the open position, the piston is forced to the left, the

seat on this end forming a tight joint which automatically closes the drip-port. A quarter turn fully opens or closes the valve, and it cannot be jarred from its set position by the vibration of train, or unseated by the steam pressure. An adjusting screw *G* is provided in the drip-port *N* for varying the opening.

The valve is substantially built, the body of iron and



End Valve with Automatic Condensation Drip Port

the cam and spindle cast in one piece. The spindle is short and of large diameter and should keep in perfect alignment for years. The area of the passage through it is so large that it offers less resistance to the flow of steam than the train line itself. The seats of the valve are renewable and can be replaced without disconnecting any piping.

In addition to relieving the hose of the effect of the continual drip incident to the relieving of the condensation through the hose coupling, it is also a protection to the trainmen when uncoupling the hose, as the opening between the train line and the hose is tightly closed when the valve is shut.



From a Hun Plane These Camouflaged Guns Might Look Like a Load of Hay

America's Only Terms—"Unconditional Surrender"

General News Department

The aerial mail carrier from Washington arrived in New York on Monday, September 16, at 2 o'clock, only 2 hours and 40 minutes after he left Washington, and this time includes a stop of eight minutes at Philadelphia.

The Railroad Administration has issued its first consolidated time table of express-train service on the Pennsylvania and Baltimore & Ohio lines between New York, Philadelphia, Baltimore and Washington. This supplements the recent action making Pennsylvania and Baltimore & Ohio tickets interchangeable for common points between New York and Washington.

Internal revenue collections during the fiscal year ending June 30, 1918, from the transportation taxes imposed by the war revenue law of October 3, 1917, included \$30,002,163 from the tax on freight transportation, \$6,458,994, from the tax on express transportation, \$24,306,350 from the tax on passenger transportation, and \$2,236,699 from the tax on seats and berths, according to a preliminary statement of the commissioner of Internal Revenue.

The Middle division of the Pennsylvania Railroad, Harrisburg to Altoona, is now divided, for purposes of train despatching, into four districts: Harrisburg to Vandyke, 41 miles; Vandyke to Longfellow, 27 miles; Longfellow to Petersburg, 36 miles, and Petersburg to Altoona, 27 miles. This division is traversed every day by a large number of very long freight trains, which must be enabled, so far as practicable, to avoid unnecessary stops. Hundred-car trains are not uncommon.

"Every bad locomotive is a Prussian soldier." This was the keynote of a speech by Director General McAdoo to the railroad shopmen at Altoona, Pa., on September 12. He urged every shopman to put forth his best endeavor in getting locomotives in working order; adding, "Every idle locomotive is working for the Kaiser. Every live locomotive is an American soldier. Every moving locomotive is working for Uncle Sam. Let us get on top of the Prussian locomotives and make American soldiers out of them."

Railroad Disasters in Europe

A press despatch of September 11 reported a collision near Schneidemuehl, Prussia, between an excursion train and a freight, in which 33 children and three other persons were killed, and 17 children were injured. The excursion train had run past a signal set against it.

A press despatch of September 13 reported a derailment near Weesp, Holland, due to the weakening of an embankment by heavy rain, in which 40 persons were killed and over 100 injured. Weesp is eight miles southeast of Amsterdam.

Grain, Coal and Live Stock Movement

During the month of August, the roads of the Central Western region loaded 71,650 cars of grain and grain products, an increase of 22,722 cars over August, 1917, or 46.4 per cent. During the same period 145,213 cars of coal and coke were loaded, an increase of 22,910 cars over the same month last year, or 18.7 per cent. The loading of live-stock amounted to 48,237 cars, an increase of 10,190 cars, or 26.8 per cent. Every effort is now being concentrated on supplying coal mines with cars.

Alaska Railroad—190 Miles Open

That part of the government railroad in Alaska between Anchorage and Seward has been completed. This makes possible the shipment of coal from the Matanuska mines directly to Seward, a distance of 190 miles. At the close of the active working season last year there remained on this

section of the line between Anchorage and Seward a gap of 16 miles, along Turnagain Arm, a branch of Cook Inlet, on which the grading had not been completed. This involved some of the most difficult construction work on the whole line and the laying of steel over this gap marks an important step. Sixty per cent of this railroad is now ready for operation, and it is expected that before the end of the present season rails will also be laid from Nenana, which is about 400 miles inland, southward 50 miles to Lignite Creek, which will make the lignite coal in the Nenana fields available.

Buy Liberty Bonds

The regional directors are advising their federal and general managers that Director General McAdoo desires that each federal treasurer shall be instructed to attach to all pay checks sent out between the present time and the close of the Liberty Loan, a poster reading as follows:

THE UNITED STATES OF AMERICA
NEEDS AS MUCH OF THIS MONEY AS YOU
CAN POSSIBLY SPARE.
HOW MUCH WILL YOU LEND TO YOUR
COUNTRY?

BUY LIBERTY BONDS
OR WAR SAVINGS STAMPS, TO THE EXTENT
OF YOUR ABILITY—EVEN IF IT INVOLVES
REAL SELF DENIAL; AND HELP WIN
THE WAR.

These posters are to be on white or tinted paper, light blue or pink 5 inches wide by 3 inches high, and should be enclosed in a double red border.

Train-Lot Plan of Moving Freight

In an article in the *Railway Age* of May 24, the trainlot plan of moving freight in the West was described. The plan, which is applied to shipments of grain, flour, lumber, oil, packinghouse products and perishables, is steadily assuming greater importance. Officers of the Northwestern region report that 90 per cent of all the freight traffic now moving through Minneapolis and St. Paul is in train lots. From March 1 to the end of August, 1,591 trains in the Northwestern region alone were operated under train movement notices. These trains consisted of a total of 46,907 cars which moved an average of 10.53 miles an hour.

Helping the Station Agent to Digest Orders

The station agent has many masters to serve, from the top of the official list to the bottom. Railway officers sometimes overlook this fact and become impatient if their numerous orders are forgotten, misinterpreted or misunderstood. In recognition of this situation A. C. Tumy, general freight agent of the Chicago, Indianapolis & Louisville, has sent the following circular letter to all agents on that road:

In view of the multiplicity of tariffs, embargo notices and instructions of one kind or another now being sent to you from this office, I realize that some of you find it difficult at times to interpret and live up to them. Here in Chicago, which is at the source of information, so to speak, we experience no little difficulty keeping up with everything. The same is true of our division freight agents. . . . Whenever you are in doubt about a freight rate, an embargo notice, short-line routing or anything else, you are free to communicate with your division freight agent. He will be glad to advise and instruct you. He is there for that purpose, and you may always depend on receiving a prompt and courteous response. . . . Much is expected of us all in these busy times. We are with you and back of you, ready to aid in every reasonable way.

RAILWAY AGE

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JULY, 1918

Name of road.	Average mileage operated during period.			Operating revenues			Operating expenses			Net from railway operation.			Operating income (or loss).			Increase (or decrease) comp. with last year.					
	Freight.	Passenger.	Total inc. misc.	Maintenance of equipment.	Way and structure.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Railway tax accrals.	Railway tax.	Operating income.	Railway tax.	Operating income.	Railway tax.					
Ala. & Vicks.....	141	\$138,486	\$57,495	\$221,432	\$48,187	\$2,615	\$81,121	\$6,566	\$166,781	75.32	\$10,917	\$43,726	\$348	\$10,917	\$43,726	\$348					
Ann Arbor.....	293	250,188	59,232	333,204	62,515	3,789	13,986	9,817	261,077	78.35	13,100	\$9,027	29,202	\$4,382	\$9,027	29,202	\$4,382				
Atlanta.....	639	311,481	84,881	418,539	50,348	8,952	10,660	10,660	398,358	75.17	20,181	15,700	29,409	4,382	29,409	4,382	29,409	4,382			
Atlantic City.....	170	157,224	297,675	477,824	27,113	37,728	803	70,766	2,086	272,582	57.11	204,742	7,800	196,942	1,127	196,942	1,127	196,942	1,127		
Baltimore & Ohio Chicago Terminal.....	91	.....	297,486	189,446	28,683	45,208	1,976	130,314	8,015	217,309	114.71	—27,863	31,876	—59,740	—50,685	—59,740	—50,685	—59,740	—50,685	
Baltimore, Chesapeake & Atlantic.....	87	107,554	61,665	177,744	11,537	37,706	2,236	88,080	1,389	141,948	79.86	35,796	3,127	32,669	11,271	32,669	11,271	32,669	11,271		
Bangor & Aroostook.....	632	219,750	71,645	272,095	37,150	68,582	108,059	4,604	142,435	11,867	339,963	90,867	34,187	1,735	16,401	—13,849	16,401	—13,849	16,401	—13,849	
Bearmount Sour Lake.....	118	52,462	27,209	83,938	18,723	15,157	1,172	37,186	3,786	76,029	90,57	7,909	2,150	5,759	—9,569	5,759	—9,569	5,759	—9,569		
Birmingham & Garfield.....	36	349,554	3,994	360,948	40,056	49,710	957	70,652	6,434	160,741	44,54	200,104	9,566	190,336	15,648	190,336	15,648	190,336	15,648		
Birmingham Southern.....	44	181,173	1,515	212,227	11,219	31,338	1,242	66,981	4,590	115,569	54,45	96,657	9,008	87,559	86,564	87,559	86,564	87,559	86,564		
Canadian Pacific Lines in Maine.....	233	91,782	26,228	130,381	55,612	31,052	2,002	64,968	2,744	156,378	119.93	—25,997	9,500	34,497	—19,797	34,497	—19,797	34,497	—19,797		
Central of New Jersey.....	684	3,622,406	904,496	4,842,290	342,948	809,140	28,328	1,628,992	63,008	2,892,689	59,73	1,949,601	169,984	1,779,334	74,490	1,779,334	74,490	1,779,334	74,490		
Chicago & Eastern Illinois.....	1,131	2,047,337	396,244	2,599,950	309,999	65,232	26,980	349,691	45,534	1,804,295	69,39	1,795,657	79,592	915,904	405,568	915,904	405,568	915,904	405,568		
Chicago, Detroit & Canadian Grand Trunk.....	60	110,300	8,200	163,436	145,726	21,500	3,439	56,920	1,954	85,563	52,35	87,833	3,345	74,521	53,363	74,521	53,363	74,521	53,363		
Chicago, Peoria & St. Louis.....	247	163,119	23,975	196,481	25,549	52,702	3,670	95,212	7,320	184,454	93,87	12,026	7,400	4,626	—6,009	7,400	4,626	—6,009	7,400	4,626	
Cincinnati, Indianapolis & Western.....	321	185,911	51,141	265,986	93,440	75,19	13,897	73	41,210	4,167	66,371	71,56	2,568	4,500	—2,425	—2,425	—2,425	—2,425	—2,425		
Colorado, Wyoming & Colorado Springs.....	42	28,227	10,136	84,312	18,873	11,472	1,007	23,260	4,260	45,40	46,032	8,500	37,531	24,929	37,531	24,929	37,531	24,929	37,531		
Cripple Creek & Colorado Springs.....	116	71,673	145,726	145,726	21,500	21,500	2,150	53,220	5,232	117,872	80,88	27,833	8,014	19,840	107,423	19,840	107,423	19,840	107,423		
Detroit Mack.....	381	111,719	146,549	27,404	377,254	64,230	2,162	14,752	19,766	294,95	77,87	83,459	8,900	74,530	52,023	74,530	52,023	74,530	52,023		
Det. Tol. & Ironton.....	463	344,901	146,549	21,892	21,892	128,106	24,462	2,162	14,752	19,766	294,95	77,87	83,459	8,900	74,530	52,023	74,530	52,023	74,530	52,023	
Detroit, Toledo & Shore Line.....	80	155,992	31,000	265,944	93,440	75,19	13,897	73	41,210	4,167	66,371	71,56	2,568	4,500	—20,378	—20,378	—20,378	—20,378	—20,378		
Detroit, Grand Haven & Milwaukee.....	190	203,000	20,985	1,692,531	106,429	99,183	28,023	1,628,992	63,008	2,892,689	59,73	1,949,601	169,984	1,779,334	74,490	1,779,334	74,490	1,779,334	74,490		
Duluth & Iron Range.....	284	1,627,904	102,987	1,564,470	94,489	94,489	15,063	15,063	1,591	3,464	3,356	60,864	64,41	33,625	32,625	107,423	32,625	107,423	32,625		
Duluth, South Shore & Atlantic.....	601	427,937	77,765	77,765	102,914	43,158	43,158	4,485	7,195	23,896	80,336	144,401	144,401	117,244	117,244	117,244	117,244	117,244	117,244		
Duluth, Wmipeg & Pacific.....	175	98,389	200,069	34,350	150,531	38,850	200,069	48,372	3,203	75,116	78,834	168,880	84,41	31,918	19,918	—50,585	31,918	19,918	—50,585	31,918	19,918
East St. Louis Connecting.....	3	1,783,855	38	2,097,872	13,982	13,982	2,732	54,739	949	123,494	4,444	100,884	101,01	—1,007	1,666	—2,425	—2,425	—2,425	—2,425	—2,425	
Elgin, Joliet & Eastern.....	806	1,783,855	27,078	2,097,872	13,982	13,982	2,732	54,739	949	123,494	4,444	100,884	101,01	—1,007	1,666	—2,425	—2,425	—2,425	—2,425	—2,425	
Fort Smith & Western.....	253	64,302	27,078	94,489	15,063	15,063	3,464	28,023	1,628,992	63,008	2,892,689	59,73	1,949,601	169,984	1,779,334	74,490	1,779,334	74,490	1,779,334	74,490	
Fort Worth & Rio Grande.....	235	50,554	37,278	94,489	15,063	15,063	3,464	28,023	1,628,992	63,008	2,892,689	59,73	1,949,601	169,984	1,779,334	74,490	1,779,334	74,490	1,779,334	74,490	
Galv. Wharf.....	13	.....	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	146,541	
Georgia Southern & Florida.....	402	163,076	98,673	263,402	72,534	71,927	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862		
Grand Trunk & Western.....	569	474,157	135,000	607,756	115,116	283,081	2,751	29,990	45,141	32,448	5,543	22,336	76,76	144,401	144,401	144,401	144,401	144,401	144,401		
Grand Trunk Western.....	347	183,712	77,765	77,765	102,914	43,158	43,158	4,485	7,195	23,896	80,336	144,401	144,401	117,244	117,244	117,244	117,244	117,244	117,244		
Gulf, Mobile & Northern.....	402	150,531	38,850	200,069	34,350	200,069	4,485	28,023	1,628,992	63,008	2,892,689	59,73	1,949,601	169,984	1,779,334	74,490	1,779,334	74,490	1,779,334	74,490	
Houston East & West Texas.....	190	86,399	44,654	138,551	106,872	1,983,872	1,378,873	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927		
Illinoian Central.....	4,782	8,073,068	1,983,872	10,056,933	545,951	121,852	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927	2,076		
Ind. Harbor Belt.....	116	500,943	130,458	653,917	52,119	52,119	10,950	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927		
Kanawha & Michigan.....	176	183,712	142,540	324,240	47,175	47,175	6,074	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927	2,076	20,862	71,927		
Kansas City, Mexico & Orient.....	272	242,540	97,826	286,162	57,433	57,433	3,685	3,685	3,685	3,685	3,685	3,685	3,685	3,685	3,685	3,685	3,685	3,685	3,685		
Kansas City Southern.....	724	835,588	200,863	1,118,610	157,706	221,044	13,584	45,640	5,301	49,640	5,301	49,640	5,301	49,640	5,301	49,640	5,301	49,640	5,301		
Kan. City Term.....	207	259,300	119,372	397,522	28,526	39,307	5,301	97,306	9,932	181,788	79,20	215,733	71,25	93,866	64,427	93,866	64,427	93,866	64,427		
Kan. City Term.....	387	219,123	64,294	292,907	44,247	56,674	1,686	1,686	9,932												

Disastrous Collision at Marshfield, Mo.

A butting collision of an eastbound troop train and a westbound freight train on the St. Louis-San Francisco, one mile east of Marshfield, Mo., Tuesday night, resulted in fatalities to 13, of whom 11 were soldiers and the remaining two, the fireman and a brakeman of the troop train. Forty were injured, but most of them not seriously. The accident was due to non-delivery of orders to the freight train and also to the fact that the troop train ran by a block signal set against it. The responsibility for the non-delivery of the orders is being investigated.

Colonel Slifer Acknowledges Receipt of Smokes

That the Railway Regiment's Tobacco Fund is an institution thoroughly appreciated by the American railway units in France is attested from time to time by letters received from overseas. Among the latest of these testimonials is a letter from Lieut.-Col. H. J. Slifer, of the Twenty-first Engineers (Light Railways), which was addressed to F. A. Poor, president of the P. & M. Company, Chicago, and chairman of the tobacco fund. Colonel Slifer says: "The tobacco for the Twenty-first Regiment has commenced to arrive. I dare say that you were right in stating that if we get all of the shipments that are due us, there will be a cloud around the regimental headquarters which may be mistaken for a battle front. I want to thank you and your associates in the name of the officers and the enlisted men. It must have been quite a task to thus look after the comfort of the railway regiments. I note with a great deal of interest the various changes that are being made in the railroad field, and as I receive the *Railway Age* regularly I am very well posted."

Railway Fire Protection Association

The annual meeting of the Railway Fire Protection Association will be held at Chicago October 15, 16 and 17. Charles N. Rambo, manager of the insurance and fire protection section of the Division of Finance and Purchases, United States Railroad Administration, has sent a letter to the regional directors calling attention to the importance of this convention, and asking them to see that representatives of the railroads, so far as practicable, be sent to Chicago to attend the meeting. All railroads were authorized, some months since, to maintain membership in the association. Mr. Rambo expects to circulate, at the meeting, a handbook summarizing the recommendations and information for the benefit of fire prevention officers afforded by the past proceedings of this association, with special reference to the needs of new fire inspectors.

A. H. Smith, regional director, Eastern Region, has called on the principal roads to each send a representative to the meeting, and has notified lines not represented at the meeting to confer with the men who do attend.

Traveling Engineers' Association

At the closing session of the Traveling Engineers' convention, which was held in Chicago last week, A. F. Duffy, assistant manager, Safety Section, United States Railroad Administration, gave a talk on the subject of reducing accidents and personal injuries on American railroads.

The secretary reported that the association now has over 1,300 members, and that over 200 members were admitted during the convention. During the past year the association has invested \$2,000 in Liberty bonds and has contributed to the American and the Canadian Red Cross. Cash balance in the treasury was nearly \$800.

The following officers were elected for the coming year: President, H. F. Henson, Norfolk & Western; first vice-president, G. A. Kell, Grand Trunk; second vice-president, W. E. Preston, Southern; third vice-president, L. R. Pyle, Railroad Administration; fourth vice-president, E. Hartenstein, Chicago & Alton; fifth vice-president, J. H. DeSalis, New York Central; treasurer, David Meadows, Michigan Central; secretary, W. O. Thompson, New York Central; executive committee—W. H. Corbett, Michigan Central; plan.

S. V. Sproul, Philadelphia, Baltimore & Washington; T. F. Howley, Erie, and F. Kerby, Baltimore & Ohio.

Chicago was chosen as the next place of meeting.

Change in Division Names of Pennsylvania Lines

A number of changes have been made in the names of divisions on the Pennsylvania Lines west of Pittsburgh. The Indianapolis division is now known as the Columbus division and includes the lines from Columbus, Ohio, including all yards and terminals at that point, to but excluding Hawthorne Junction, Ind. The Vincennes division, the Indianapolis terminal division of the St. Louis system and the Indianapolis terminal division of the Southwest system have been combined under the name of the Indianapolis division, with headquarters at Indianapolis, Ind., and made a part of the St. Louis system. This division also includes that part of the former Indianapolis division, extending from and including Hawthorne Junction westwardly. The Louisville division is now operated as a part of the St. Louis system.

Express Company Organizes

Department for Theft Prevention

The American Railway Express Company has organized a special agents' department the purpose of which is practically the same as that of the Property Protection Section of the Railroad Administration. The circular creating the new department calls on officers and employees to assist in the worthy cause whenever possible. Assistance and information given by railroad employees and others will be appreciated by the express management. The express companies having been formed into one corporation, this special agents' department is the largest single organization of its kind, covering the entire United States and operating somewhat like the Post Office inspection department.

There are five chief special agents, one for each of the operating vice-presidents; twenty special agents, one in charge of the work for each of the twenty general managers; approximately a hundred additional special agents and a thousand special officers. The chief special agents are: Joe L. Hagy, New York; E. B. Harrigan, Atlanta, Ga.; W. E. Riggs, Chicago; F. W. Schuler, St. Louis, Mo., and C. Cain, San Francisco, Cal. Several members of the new organization were formerly superintendents, and one of the chief special agents was formerly a general superintendent with one of the old express companies. The Property Protection Section of the Railroad Administration and the express company's special agents are co-operating, and offenders are being prosecuted in the federal courts.

Sailing Day Plan Extended in West

A sailing day schedule for l. c. l. freight destined to points in the Northwestern region will be introduced in Chicago about September 23. The schedule, which has been worked out under the direction of J. H. Brinkerhoff, terminal manager of the Chicago-switching district, also conforms to the plan for the consolidation of l. c. l. traffic over definite routes to designated destinations, which was introduced by the Northwestern regional director some time ago. The schedules have been printed in pocket size for the use of railway officers and shippers. The book includes a list of stations in the Northwestern region arranged alphabetically and grouped according to states. Letter symbols indicate the days of the week on which less-than-carload freight may be shipped to each station and the route such shipments will take. The plan is temporary and later will be replaced by permanent schedules for all the roads (of all regions) entering Chicago. It is estimated that the temporary schedule will mean a saving of 410 cars a week in the Northwestern region. A permanent schedule is being worked out on the basis of a more detailed study of present facilities and service.

On September 16 the sailing day plan was inaugurated on all railroad lines in California. It is estimated by R. L. Ruby, superintendent of transportation of the Southern Pacific, the Western Pacific and the Tide-Water Southern, that the new arrangement will mean a saving of about 500 cars a week and an increase in the average load per car of about 2,000 lb. A shipping day guide has also been issued for the purpose of informing agents and shippers in California of the details of the plan.

Traffic News

The Bureau of Markets of the Department of Agriculture has announced its readiness to enter into co-operative agreements with operators of rural motor-truck routes, and operators who agree to conform to the general requirements of the bureau are to be given current information from the bureau's offices and authorized to display large metal signs on their trucks. The government hopes to stabilize the rural motor business by requiring adherence to approved business practices. Truck operators who desire to co-operate with the bureau must agree to maintain dependable service and schedules; charge just rates based on cost plus a reasonable profit; keep satisfactory records of operating costs and furnish certain of them to the bureau; use uniform bills of lading approved by the bureau, and provide adequate insurance for shipments.

Grain Loading Shows Increase

A total of 298,581 cars of grain were loaded up to September 7, as compared with 206,698 in the corresponding period of 1917, according to reports compiled by the Railroad Administration showing the figures by regional districts for the weeks ending August 24 and September 7. The increases for the year are shown in all of the regions, although there was a slight decrease during the week ending September 7 in the Eastern, Allegheny and Pocahontas regions. A report of the grain receipts at primary markets in the western district up to September 7 shows a total of 566,876,000 bushels, an increase of 151,470,000 over the corresponding period of last year.

The total grain in elevators at primary markets in the western district on September 7 was 59,286,000 bushels, as compared with 8,028,000 for the corresponding period of 1917. The total included 4,313,000 bushels of corn, 18,676,000 of oats, and 38,297,000 of wheat.

Coal Production

Production of bituminous coal during the week of September 7, while limited by the loss of time on Labor Day, exceeded production during the week which included July 4 by 1,000,000 net tons. The output is estimated at 11,249,000 net tons. The loss of time during the week places production for the coal year to date approximately 17,000,000 tons behind the summer requirements outlined by the Fuel Administration and makes necessary an average daily production during the balance of the coal year of 2,041,000 to make up the deficit. This would be 3.2 per cent in excess of the average daily production to date.

Production of anthracite during the week is estimated at 1,617,579 net tons, 28 per cent less than during the week preceding.

For the week ending August 31, the percentage of full time output lost by bituminous operators on account of car shortage is reported at 11.2 per cent.

A report to Director General McAdoo by the Car Service Section of the Railroad Administration shows the total loading of all kinds of coal for the week ending August 31 to have been 265,247 cars, as compared with 234,647 in the corresponding week of 1917. The estimated total for the week of September 7 was 227,000 as compared with 204,757, making the increase up to and including the week of September 7 over the same period of 1917, 539,438 cars.

The National Coal Association has issued a statement taking issue with declarations by Director General McAdoo that car shortage has not been mainly responsible for the failure to produce sufficient coal. While conceding that the car supply has shown marked improvement during the summer in some districts the statement says: "Shortage of cars at the bituminous coal mines has curtailed production of not less than 82,000,000 tons since January 1 and stands as the dominating factor of all causes of curtailment."

Commission and Court News

Interstate Commerce Commission

The commission has adopted a special rule of practice to the effect that original complaints filed in new proceedings under the Act to regulate commerce, as amended, should name as defendants, in addition to the director general of railroads, the carriers not under federal control, and should specify the carriers, or the principal carriers under federal control, over whose lines the rates, fares, practices, etc., apply. The complainant may name as additional defendants the carriers under federal control over whose lines the rates, etc., apply. The complainant must furnish as many complete copies of the complaint as there may be parties defendant to be served, including receivers and operating trustees of carriers not under federal control; as many additional copies for the director general as there are carriers under federal control specified in the complaint and not named as defendants, and seven additional copies for the use of the commission. Service of the complaint will be made by the commission.

Personnel of Commissions

George M. Crosland has been designated acting chief of the tariff bureau of the Interstate Commerce Commission until a permanent successor to J. M. Jones is named.

J. H. Carmalt has resigned as chief examiner of the Interstate Commerce Commission and pending the selection of his successor, Henry Thurtell, will act as chief examiner.

Court News

Notice of Claim—Interstate Shipment

The South Carolina Supreme Court holds that filing of suit against a railroad for damage to an interstate shipment, under the proviso of the interstate commerce act that if the loss, damage, or injury was due to delay or damage while being loaded or unloaded, or to carelessness or negligence while in transit, no notice of filing of claim shall be required as a condition precedent to recovery, was sufficient compliance with the stipulation in the bill of lading that claims must be made in writing to the carrier at the point of delivery or of origin within four months. —Lindley Nursery Co. v. Southern (S. Car.), 96 S. E. 221.

Liability to Passenger Riding at Reduced Fare

Action was brought against a railroad for the death of a clergyman while traveling on a clerical ticket containing an agreement, in consideration of reduced fare, to exempt the railroad from liability for damages caused by its negligence. The New York Court of Appeals, by a divided court, affirming 171 App. Div. 687, held the release valid, saying in part, by Mr. Justice McLaughlin: "Had the intestate, at the time of the accident been traveling on a pass there could be but one answer to the question. A recovery could not be had. This court settled that question over half a century ago. Wells v. N. Y. C., 24 N. Y., 181. It was there specifically held that such a contract was not against public policy. Does an agreement to sell a ticket at a reduced rate of fare, in consideration of exemption from such liability change the rule? I do not think it does. No good reason can be suggested why it should. If a railroad company and a passenger be permitted to make such a contract at all, then they are the sole judges of the amount of consideration which will compensate the one for being relieved from liability and the other for assuming the risk, whether it be the whole fare or anything less than that. . . . In fairness, it seems to me the agreement should be enforced. The intestate was an intelligent man. He deliberately and voluntarily entered into the agreement. It was printed on the back of the ticket, and as evidence that he had full knowledge and appreciated the effect of the agreement his signature is affixed thereto." —Anderson v. Erie (N. Y.), 119 N. E., 557. Decided April 23, 1918.

Equipment and Supplies

Locomotive Deliveries

A total of 54 new locomotives were shipped to railroads under federal control from the various locomotive works during the week ending September 7, according to a statement issued by the Railroad Administration. Of these 28 were of the U. S. R. A. standard types and the balance other types on former orders of the railroads. The American Locomotive Company shipped 25, the Lima Locomotive Corporation 5 and the Baldwin Locomotive Works 24.

Car and Locomotive Standards

The Committee on Standards for Cars and Locomotives began its monthly meeting at Washington on Tuesday. It is expected to continue in session until Friday. In addition to giving final approval to designs for the 60-foot and 70-foot baggage cars which have been prepared and from which orders for about 1,500 cars are expected to be placed, the committee expected to consider a plan of general instructions governing betterments to freight cars providing they should receive as nearly as possible appliances that will be interchangeable with those in the standard cars. These will probably be embodied in a circular to be issued.

Locomotives

THE TIENTSIN PUKOW RAILWAY, China, has ordered 10 Mikado locomotives from the American Locomotive Company.

THE PEKIN KALGAN RAILWAY, China, has ordered 5 Mikado and three Mallet locomotives from the American Locomotive Company.

Freight Cars

H. KOPPERS, Pittsburgh, Pa., is inquiring for one hopper car.

THE EXETER MACHINE WORKS, Pittston, Pa., is inquiring for 28 standard 50-ton trucks and 15 small steel car bodies.

Iron and Steel

THE WABASH has ordered one riveted truss span and two plate girder bridges, 304 tons, from the American Bridge Company.

Miscellaneous

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered 50 hard coal car heaters from the Refrigerator Heater & Ventilator Car Company, St. Paul, Minn.

NEW URUGUAYAN ENGINEERING JOURNAL.—A new bilingual engineering review, called Ingenieria Sudamericana (South American Engineering), has recently been founded at Montevideo. It will be printed in Spanish and English and will be devoted to engineering and allied interests in American countries. The publishers are the Engineering Editorial Company, Reconquista 634, Montevideo, Uruguay.—Commerce Reports.

COAL SHORTAGE IN IRELAND.—Arising out of the question of reduced train services in Ireland, the president of the British Board of Trade said that there is a shortage of coal there, and the railway companies had, in consequence, been called upon to reduce their passenger facilities. Asked why the coal rationing system was not applied to Ireland, Sir Albert Stanley said that the conditions in Ireland are so totally different, that it would be impossible to apply the same system in Ireland as in Great Britain.

Supply Trade News

The Lidgerwood Manufacturing Company has opened its own branch office in the Union National Bank building, Cleveland, Ohio, for the better handling of the company's contractors hoists, mine hoists and cableway business in that territory. This office will be in charge of Ernest F. Pegg, who has been handling the Lidgerwood line for the W. M. Pattison Supply Company, its former agent. Mr. Pegg is, therefore, familiar with all the Lidgerwood products and well prepared to serve the trade.

Guy E. Tripp, formerly Colonel United States Army and head of the production division of the Ordnance Department, has been promoted to the rank of Brigadier General in the United States Army, and placed in control of the offices having charge of the production of ordnance material in their respective sections of the country. The district chiefs will report direct to General Tripp, who is succeeded as head of the production division by Colonel C. C. Jamieson. Previous to his connection with the Ordnance Department, General Tripp was chairman of the board of directors, Westinghouse Electric & Manufacturing Company, at New York.



Guy E. Tripp

E. O. Griffin, until recently assistant to the president of the St. Louis Southwestern, with headquarters at St. Louis, Mo., has been elected vice-president and sales manager of the Rabok Paint Company, with headquarters at Houston, Tex. Mr. Griffin was born at Madison, N. C., on January 3, 1867. He attended the Southwestern Baptist University, Jackson, Tenn., for two years, following which he took the law course at Vanderbilt University, Nashville, Tenn. He entered railroad service as assistant to the master in chancery on the International & Great Northern in 1889. In the following year he was appointed assistant to the receiver, and in 1895 was appointed assistant to the



E. O. Griffin

general manager. From 1897 to 1903 he was chief clerk to the vice-president and general manager, and from the latter date to 1904 was passenger and ticket agent at San Antonio, Tex. In 1905 he was appointed southwestern passenger agent of the Missouri Pacific, and three years later demurrage agent of all lines entering Galveston, Tex. In 1909 he returned to the International & Great Northern as chief clerk to the superintendent, and two years later was appointed general storekeeper. He was promoted to purchasing agent and general storekeeper in August, 1914, and remained in that position until December, 1916, when he was appointed

assistant to the president of the St. Louis Southwestern Lines in charge of the purchases, stores, tie and timber, fuel and scale departments. He continued in that position until August 1, 1918, when upon the reorganization of the St. Louis Southwestern under Federal control, he was appointed assistant purchasing agent for that part of the road between Texarkana, Ark., and St. Louis, Mo. In addition to directing the sales work of the Rabok Paint Company at Houston, Tex., he will represent the Southern Railway Supply & Equipment Company, manufacturers of a general line of railway hardware; the Scarritt Car Seat Company; the Harry Benjamin Equipment Company; the Byrnes Belting Company; the Aquart Manufacturing Company, manufacturers of coach cleaning compounds; the Falls Hollow Staybolt Iron Company; the Great Western Smelting & Refining Company; the Royal Waste Company, and Leo Krouse of Texarkana, a manufacturer of hardwood lumber and cross ties.

Effective September 1, **Captain J. J. Gaillard** assumed the position of district engineer in charge of the Atlanta office, Portland Cement Association, succeeding **W. Jess Brown**, who has resigned to accept a commission as captain in the Ordnance Department, U. S. Army. Captain Gaillard joined the forces of the Portland Cement Association on January 1, 1918, and since that time he has been doing general promotion and inspection work in the district covered by the Atlanta office of the association.

F. J. O'Brien, whose appointment as general manager of the Globe Seamless Tubes Company, Chicago, was announced in the *Railway Age* of September 6, began his business career as a stenographer in the manufacturing department of the Pullman Company in 1894. He was subsequently chief clerk to the general manager and manager of the sales department of the same company, and in 1906 left the Pullman Company to become sales representative of the Kirby Equipment Company. He remained with that company until 1910 when he became identified with the Globe Seamless Steel Tubes Company as sales representative. He was promoted to general sales manager in 1914, and in April, 1917, was appointed manager of mills, with headquarters at Milwaukee. On September 1, 1918, he was promoted to general manager of the company, with headquarters at Milwaukee.

The Assets of the Orenstein-Arthur Koppel Company of Koppel, Pa., were sold by the Alien Property Custodian in an auction at Pittsburgh, on August 12, to W. A. Chamberlain of Pittsburgh acting for the Pressed Steel Car Company. The price paid was \$1,312,000. Included in this sale were a number of subsidiary companies which were owned by the Koppel company. These were the Koppel Land Company, the Beaver Connecting Railroad, the Koppel Water Company, the Koppel Sales Company, of Koppel, Pa.; the Pennsylvania Car & Manufacturing Company of Pittsburgh, and the Universal Railway Products Company of New York. The company was taken over by the Alien Property Custodian several months ago since which it has been operated as an American concern under the supervision of T. Hart Given. On September 13, the Alien Property Custodian also sold at an auction, also in Pittsburgh, stock in the H. Koppers Company, of Pittsburgh, amounting to \$300,000 and representing the 20 per cent enemy interest in the company. The buyer was Hamilton Stewart, treasurer of the company and secretary of the Harbison Walker Refractories Company. He paid \$100.75 a share for the 3,000 shares.



F. J. O'Brien

Trade Publications

PNEUMATIC AND ELECTRIC TOOLS.—The Independent Pneumatic Tool Company, Chicago, has issued a four-page circular describing its pneumatic and electric tools with photographs and dimensions.

DRAG SCRAPERS.—The R. H. Beaumont Company, Philadelphia, Pa., has just issued a new catalogue No. 38 describing and illustrating the Beaumont drag scraper system for the ground storage of coal.

TANKS.—The Walter A. Zelnicker Supply Company, St. Louis, Mo., has issued bulletin No. 246. This is a four-page pamphlet and contains specifications for some of the storage, wooden and car tanks, etc., carried in stock by the company.

EXPANSION JOINTS.—The Ross Heater & Manufacturing Company, Buffalo, N. Y., has issued a folder describing and illustrating the Ross crosshead-guided expansion joints, water heaters, condensers and other apparatus manufactured by this company.

STROM BEARINGS.—Data sheets giving prices and dimensions of all types of Strom bearings have been compiled in a 72-page catalogue by the U. S. Ball Bearing Manufacturing Company, of Chicago, to assist purchasers in making selection of the proper bearings for their needs.

ROME HOLLOW STAYBOLT IRON.—Bulletin No. 2 of the Rome Iron Mills, Inc., 30 Church street, New York, enumerates the advantages of Rome hollow staybolt iron, and bears out a claim of economy with figures comparing the cost of this kind of staybolt iron per engine for the first year and each succeeding year, and the ultimate cost of solid iron, which must be drilled and frequently tested.

PNEUMATIC AND ELECTRIC TOOLS.—The Independent Pneumatic Tool Company, Chicago, has recently issued circular No. 27, illustrating and describing in convenient tabular form the line of Thor pneumatic and electric tools which the company manufactures. These include the Thor cylinder and turbine air drills, electric drills, pneumatic hammers, pneumatic holder-ons and pneumatic sand rammers.

SCALES.—The Standard Scale and Supply Company, Pittsburgh, Pa., has issued an attractive catalogue A-235 of 48 pages, descriptive of its products. Several pages are devoted to the design and construction of railroad track scales and the other scales used extensively in railway service. The catalogue is attractively prepared with profuse illustrations and a complete descriptive index. The information contained is presented in a particularly concise manner.

CALCULATING BEARING LOADS.—The U. S. Ball Bearing Manufacturing Company has compiled in a booklet of convenient size, formulae and calculations necessary to determine the loads on ball bearings resulting from various types of power transmitting elements, with sketches illustrating the various bearing loads. These include belt, rope and chain drive loads, spur, helical and bevel gear drive loads, and helical bevel gear and worm gear drive loads.

INSULATING BRICK.—The Armstrong Cork & Insulation Company, Pittsburgh, Pa., has purchased a four-page leaflet which describes the composition of Nonpareil insulating brick for furnaces and ovens, and cites an instance as proof of the claim that Nonpareil insulating brick will save from 60 to 75 per cent of the heat ordinarily lost by conduction and radiation and makes it possible to attain a desired temperature in less time than would otherwise be required.

HORIZONTAL BORING MACHINE.—A detailed description of the Landis No. 35 floor type horizontal boring, milling and drilling machine, illustrated with numerous photographs of the assembled machine and its parts, is contained in a 15-page catalogue issued by the Landis Machine Company, Waynesboro, Pa. This machine has an almost universal range of adaptability and may be used to bore, mill, drill, tap, spline, oil-groove, or rotary-plane at one setting, and when a swiveling table is used, the work can be finished on all sides without resetting. The catalogue also contains a sketch showing a sectional view of the spindle driving and feeding mechanism, with all of the details numbered.

Railway Financial News

BOSTON & MAINE.—The reorganization plan of this company is commented on editorially elsewhere in this issue.

BUFFALO, ROCHESTER & PITTSBURGH.—The New York Public Service Commission has approved the agreement between the Buffalo, Rochester & Pittsburgh and the Central Union Trust Company of New York, by which the railroad will issue \$1,200,000 equipment bonds at 6 per cent.

CANADIAN NORTHERN.—A temporary board of directors, working in conjunction with the government, it is officially announced, will administer the Canadian Northern Railway probably for some time. Negotiations for the purchase by the government of the Grand Trunk are being continued, and, till some conclusion is reached, it is unlikely that a permanent board will be appointed. At present the Canadian Northern is being administered by D. B. Hanna, A. J. Mitchell and Major Bell, deputy minister of railways.

The Canadian treasury has completed the arrangements for the payment of the purchase money for Canadian Northern Railroad stock held by Sir William Mackenzie, Sir Donald Mann and their associates and for the formal incorporation of the railway properties in the government system. The financial arrangements provide for the payment of \$8,500,000 to the two parties mentioned and the Canadian Bank of Commerce holders and pledges of 510,000 shares of Canadian Northern Railroad stock taken over from them by the government. Sundry other holders having 90,000 shares received \$1,620,000, so the total amount paid for 600,000 shares is \$10,120,000.

CHICAGO & NORTHWESTERN.—This railroad has been the first to notify the Railroad Administration of its acceptance of the standard contract.

CHICAGO & WESTERN INDIANA.—J. P. Morgan & Co. have issued the following statement in connection with the default of this company's \$15,000,000 6 per cent notes which matured September 1: "We have noted Mr. John Skelton Williams's statement, renewing his attack upon us and upon our associates, because of our inability to secure funds at 6 per cent, to finance the obligations of the Chicago & Western Indiana Railway Company. We have nothing further to say except to reiterate our regret that Mr. Williams, while publishing his telegrams to us, refrains from making public ours to him."

DENVER & RIO GRANDE.—See Western Pacific.

MARSHALL & EAST TEXAS.—This company has sold a part of its line extending from Marshall to Elysian Fields, 20 miles, to the Waterman Lumber Company, Marshall, Tex.

UNION PACIFIC.—This company owns \$3,000,000 of Delaware & Hudson three-year 5 per cent notes, as shown by the list of securities in its annual report for December 31, 1917. These notes represent one-third of the issue offered by the Delaware & Hudson in July, 1917.

WESTERN PACIFIC.—In pursuance of a report by the Equitable Trust Company, trustee under the first mortgage of the old Western Pacific Railway Company, as to the sums thus far recovered upon a judgment of \$38,000,000 against the Denver & Rio Grande, the Western Pacific Railroad Corporation has made an offer to holders of the bonds of the old company who did not assent to the plan of reorganization. The new company offers five shares of its preferred stock and seven and one-half shares of its common stock for each \$1,000 face amount of the bonds, together with an amount of cash equal to all dividends which have been or may be paid prior to Oct. 15, 1918, on which date the offer expires. Bondholders accepting the offer are to surrender their bonds with their right to participate in the judgment and to pay in cash the share which they have received on their bonds out of the proceeds of the foreclosure sale of the Western Pacific Railway property, with interest at 5 per cent from July 1, 1916, to Oct. 1, 1918.

Railway Officers

Railroad Administration

Regional

Richard B. Thornton has been appointed inspector of telegraph and telephone of the Central Western region, with headquarters at Chicago, Ill.

Federal and General Managers

G. L. Blair has been appointed general manager of the San Francisco & Portland Steamship Line, with headquarters at San Francisco, Cal., effective September 12.

G. F. Hawks, general manager of the El Paso & Southwestern, at El Paso, Texas, has had his authority extended to include the El Paso Union Passenger depot.

The Pacific & Eastern having been relinquished from government control, the jurisdiction of **J. P. O'Brien** as federal manager of that line has been discontinued.

The jurisdiction of **E. L. Brown**, general manager of the Denver & Rio Grande, with headquarters at Denver, Colo., has been extended over the Denver Union Terminal Railroad.

M. J. Buckley, general superintendent of the Oregon-Washington Railroad & Navigation Line, with headquarters at Portland, Ore., has been appointed general manager of that road, the Southern Pacific lines north of Ashland, Ore., and the Pacific Coast, with headquarters at Portland, Ore., effective September 12.

C. M. Scott, whose appointment as general manager of the Arizona Eastern, with headquarters at Phoenix, Ariz., was announced in the *Railway Age* of August 30, was born in



C. M. Scott

Hamilton county, Ohio, on April 10, 1872. Mr. Scott entered railway service with the Baltimore & Ohio Southwestern, now a part of the Baltimore & Ohio, as chief clerk in the trainmaster's office in 1890, and subsequently became chief clerk in the superintendent's office and train dispatcher. In 1896, he entered the service of the Chicago, Burlington & Quincy as chief operator in the dispatcher's office at St. Joseph, Mo., and later he became secretary to the general superintendent. In 1900,

he went with the Atchison, Topeka & Santa Fe, in the general freight and passenger agent's office at Prescott, Ariz. The following year he was employed in the chief engineer's office, and later in the general manager's office of the same road, at Prescott, Ariz. In 1905, Mr. Scott entered the service of the Arizona Eastern and the Southern Pacific Railroad Company of Mexico as secretary to the president, with headquarters at Tucson, Ariz. Later he became chief clerk to the president, and in 1907, he was promoted to superintendent of the Phoenix division of the Arizona Eastern, with headquarters at Phoenix, which position he held until his appointment as mentioned above.

Operating

John Ellett has been appointed trainmaster of the Norfolk & Western, with office at Crewe, W. Va., succeeding **D. F. Peters**, promoted.

W. A. Ginn has been appointed general agent of the Chesapeake & Ohio and the Ashland Coal & Iron Railroad, with office at Ashland, Ky.

J. J. O'Neill has been appointed general manager of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., effective September 12.

J. Lord has been appointed trainmaster of the Sacramento division of the Southern Pacific (Pacific system lines south of Ashland), with headquarters at Truckee, Cal., vice **F. E. Keenan**, transferred.

J. E. Fahy has been appointed assistant superintendent of transportation of the Baltimore & Ohio Railroad, western lines, the Dayton & Union Railroad and the Dayton Union Railroad, with headquarters at Cincinnati, Ohio.

L. R. Smith has been appointed supervisor of transportation, with jurisdiction over the Southern Pacific, Pacific system lines south of Ashland, the Western Pacific, the Tidewater Southern, and the Deep Creek Railroad, with headquarters at San Francisco, Cal.

W. G. Choate, assistant to president of the Gulf Coast Lines, has been appointed assistant general manager of the New Orleans, Texas & Mexico, the Beaumont, Sour Lake & Western, and the St. Louis, Brownsville & Mexico, with headquarters at Houston, Tex.

W. C. Showalter, trainmaster of the Northern Pacific at Missoula, Mont., has been promoted to superintendent of the Rocky Mountain division, with the same headquarters, succeeding **F. R. Bartels**, who has been granted a leave of absence to enter military service.

E. W. Lollis, trainmaster of the Chicago, Milwaukee & St. Paul, at Savanna, Ill., has been promoted to superintendent, with office at Des Moines, Ia., succeeding **R. P. Edson**, transferred; **C. E. Corcoran** succeeds Mr. Lollis and **N. A. Meyer** has been appointed trainmaster of the Milwaukee Terminal at Milwaukee, Wis.

Martin W. Clement, whose appointment as superintendent of freight transportation of the Pennsylvania Railroad, eastern lines, with headquarters at Philadelphia, Pa., has already been announced in these columns, was born on December 5, 1881, at Sunbury, Pa., and was educated at Trinity College, Hartford, Conn. He entered the service of the Pennsylvania Railroad on August 1, 1901, as a rodman in the office of the principal assistant engineer of the United Railroads of New Jersey. He later served successively as transitman and assistant supervisor, and on January 1, 1910, was promoted to supervisor in the office of the general manager. He was transferred to the Manhattan division in June, 1913, and to the

Pittsburgh division the following December in the same capacity. One year later he was transferred to the New York, Philadelphia & Norfolk as division engineer, and on August 8, 1916, returned to the Pennsylvania Railroad as division engineer to study improvements in and around New York. In November, 1916, he was appointed division engineer under the principal assistant engineer of the New Jersey division, and in June, 1917, he was appointed superintendent of the New York, Philadelphia & Norfolk. He was promoted to superintendent of freight transportation of the Pennsylvania Railroad, eastern lines, on September 1, as above noted.

W. C. Garaghty, maintenance of equipment inspector of the Baltimore & Ohio, western lines, with office at Cincinnati, Ohio, has been appointed safety agent of the South-

west district, with headquarters at Cincinnati, Ohio; **W. J. Head**, trainmaster at Cleveland, has been appointed safety agent of the Northwest district, with headquarters at Cleveland; **H. C. Batchelder**, terminal trainmaster at Akron Junction, Ohio, has been appointed trainmaster at Cleveland, vice Mr. Head, and **T. C. Smith** succeeds Mr. Batchelder.

Financial, Legal and Accounting

C. L. Smith has been appointed acting federal treasurer of the Ft. Dodge, Des Moines & Southern, with headquarters at Boone, Ia.

F. W. Johnston, whose appointment as federal treasurer of the Ft. Dodge, Des Moines & Southern was announced in the *Railway Age* of September 13, has been appointed federal auditor; the announcement last week being in error.

J. W. Edwards has been appointed federal auditor of the Pacific Coast, and **J. L. Platt** has been appointed acting federal treasurer, with headquarters at Seattle, Wash., effective September 12.

E. L. Brown, controller of the Northern Pacific Terminal Company, has been appointed federal auditor, and **Lloyd L. Mulit** has been appointed acting federal treasurer, with headquarters at Portland, Ore., effective September 12.

I. T. Bennett, car accountant on the Litchfield & Madison, has been appointed acting federal treasurer, succeeding **F. M. Campbell**, who remains auditor of that road, with headquarters at Edwardsville, Ill., effective September 4.

A. R. Howard, local treasurer of the International & Great Northern and the Galveston, Houston & Henderson, has been appointed also acting federal treasurer of the Houston & Brazos Valley, with headquarters at Houston, Texas, succeeding **W. C. McLendon**, resigned, effective September 15.

R. Blaisdell, federal auditor of the Oregon-Washington Railroad & Navigation lines and the Camas Prairie, has been appointed federal auditor also of the San Francisco & Portland Steamship Line. **J. F. Meyer** has been appointed acting federal treasurer of those lines, with headquarters at Portland, Ore., effective September 12.

A. C. Spencer, general solicitor of the Oregon Washington Railroad & Navigation Company, has been appointed general solicitor also of the Southern Pacific lines north of Ashland, Ore., the Pacific Coast, the San Francisco & Portland Steamship Line, and the Northern Pacific Terminal of Oregon, with headquarters at Portland, Ore., effective September 12.

G. R. Cottingham, general auditor of the Texas & New Orleans and the Galveston, Harrisburg & San Antonio, has had his jurisdiction extended over Morgan's Louisiana & Texas, the Louisiana Western, the New Orleans, Texas & Mexico, the Beaumont, Sour Lake & Western, the St. Louis, Brownsville & Mexico, the San Antonio & Aransas Pass, the San Antonio, Uvalde & Gulf, the Southern Pacific Terminal Company and the Galveston Wharf Company, with headquarters at Houston, Texas.

Traffic

H. A. Johnson, traffic manager of the Colorado & Southern, at Denver, Colo., has been appointed traffic manager also of the Denver & Salt Lake.

T. L. Peeler has been appointed industrial commissioner for all roads under the jurisdiction of **J. S. Pyeatt**, federal manager, with headquarters at Dallas, Texas, effective September 1.

Harry Parry, assistant general passenger agent of the New York Central, with office at Buffalo, N. Y., has been appointed general passenger agent of the lines east, and of the West Shore Railroad, with headquarters at New York, to succeed **C. C. Howard**, resigned to go into other business.

C. H. Stinson, freight traffic manager of the Wabash, at St. Louis, Mo., has been appointed assistant traffic manager; **H. E. Watts**, general freight agent, at St. Louis, has been appointed general passenger agent, and **F. H. Tristram**,

general passenger agent, at St. Louis, has been appointed assistant general passenger agent.

F. W. Robinson, traffic manager of the Oregon-Washington Railroad & Navigation line, with headquarters at Portland, Ore., has been appointed traffic manager also of the Southern Pacific lines north of Ashland, Ore., the San Francisco & Portland Steamship Line, and the Pacific Coast, with headquarters at Portland, effective September 12.

Engineering and Rolling Stock

H. S. Marshall, chief land appraiser of the Chicago, Burlington & Quincy, has been appointed valuation engineer, succeeding **W. W. K. Sparrow**.

The authority of **A. M. Frazee**, electrical engineer of the Duluth, Missabe & Northern, with office at Duluth, Minn., has been extended over the Duluth & Iron Range.

The authority of **W. H. Woodbury**, valuation engineer of the Duluth & Iron Range, with office at Duluth, Minn., has been extended over the Duluth, Missabe & Northern.

F. E. Keenan, trainmaster of the Southern Pacific, at Truckee, Cal., has been appointed district road foreman of engines, with headquarters at Sacramento, Cal., vice **W. L. Hack**, promoted.

W. J. Barnes has been appointed engineer of power plants of the Baltimore & Ohio, western lines; the Dayton & Union Railroad and the Dayton Union Railroad, with headquarters at Cincinnati, Ohio.

Willard Kells, who has been appointed general superintendent of motive power of the Atlantic Coast Line, with headquarters at Wilmington, N. C., as has already been announced in these columns, was born on February 4, 1868, at Dennison, Ohio, and was educated in the grammar and high schools of Cleveland, Ohio. He began railway work on March 1, 1888, as a machinist apprentice with the Erie Railroad, at Susquehanna, Pa., and later was promoted to gang foreman, at Meadville, Pa. On October 1, 1893, he was appointed general foreman of the same shop, and in January, 1896, was promoted to master mechanic, Mahoning division, with headquarters at Cleveland. In August, 1898, he was transferred as master mechanic to the Lima and Chicago divisions, with headquarters at Huntington, Ind. From February 1, 1899, to April 1, 1903, he was master mechanic of the Meadville division at Meadville, Pa., and on the latter date resigned from the service of the Erie to become assistant master car builder of the Union Tank Line, with office at New York. The following month he was appointed master mechanic of the Auburn, Pennsylvania and Seneca divisions of the Lehigh Valley, with headquarters at Sayre, Pa. He was later transferred to Buffalo, N. Y., in the same capacity and was given supervision of all divisions in New York state. He resigned from the service of the Lehigh Valley in December, 1910, to go to the Atlantic Coast Line as assistant to the general superintendent of motive power, with headquarters at Wilmington, N. C., and one year later was appointed assistant general superintendent of motive power, which position he held until his recent appointment as general superintendent of motive power of the same road, as above noted.

A. B. Ford, division master mechanic of the Great Northern, at Great Falls, Mont., has been promoted to general master mechanic, with headquarters at Great Falls, to succeed **J. J. Dowling**, transferred.

The jurisdiction of **A. D. Williams**, superintendent of motive power, Northern district on the Southern Pacific, has been extended to include the Western Pacific, Tidewater Southern and Deep Creek Railroads, with headquarters at Sacramento, Cal.

J. J. Dowling, general master mechanic on the Great Northern, with headquarters at Great Falls, Mont., has been appointed general master mechanic of the eastern district, with headquarters at St. Paul, Minn., succeeding **G. A. Bruce**, deceased, effective September 15.

S. Murray, chief engineer of the Oregon-Washington Railroad & Navigation lines, has been appointed chief engineer also of the Southern Pacific Lines north of Ashland, Ore., the Pacific Coast, and the Northern Pacific Terminal of Oregon, with headquarters at Portland, Ore., effective September 12.

R. E. Chamberlain, division engineer of the Baltimore & Ohio, western lines, with office at Flora, Ill., has been appointed division engineer, with headquarters at Chillicothe, Ohio, vice **A. H. Freygang**, promoted, and **John Hewes, Jr.**, has been appointed division engineer, with headquarters at Flora, Ill., vice Mr. Chamberlain.

R. E. Roe, general master mechanic of the Gulf Coast Lines, has been appointed assistant mechanical superintendent of the New Orleans, Texas & Mexico, the Beaumont, Sour Lake & Western and the St. Louis, Brownsville & Mexico, with office at Kingsville, Tex., and **C. S. Kirkpatrick**, chief engineer of the Gulf Coast Lines, has been appointed assistant engineer maintenance of way of the same three lines, with office at Houston, Tex.

Purchasing

Until further notice, **E. T. Burnett** will perform the duties of purchasing agent of the Norfolk & Western, in addition to his duties as chairman of the Regional Purchasing Committee for the Pocahontas Region.

G. W. Saul, purchasing agent of the Oregon-Washington Railroad & Navigation lines and the Yakima Valley Transportation Company, has been appointed purchasing agent also of the Northern Pacific Terminal of Oregon and the Pacific Coast, with headquarters at Portland, Ore., effective September 12.

Corporate

Executive, Financial, Legal and Accounting

R. B. Alberson has been appointed assistant secretary and assistant treasurer of the Minneapolis & St. Louis, with headquarters at Des Moines, Iowa, and **W. B. Davids** has been appointed assistant secretary, with headquarters at New York.

G. W. Webster, secretary of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., has been appointed also treasurer, succeeding **C. F. Clement**, formerly treasurer, who is now federal treasurer, as announced in the *Railway Age* of August 9.

I. McQuilkin, vice-president in charge of accounting of the Carolina, Clinchfield & Ohio, has been elected vice-president and treasurer of the corporate organization, with headquarters at Johnson City, Tenn. **Edward C. Baily** has been elected secretary, with headquarters at New York.

W. G. Besler, president and general manager of the Central Railroad of New Jersey, continues as president under the corporate organization. **F. T. Dickerson**, assistant to the president and assistant secretary, has been appointed also assistant treasurer under the corporate organization.

Felix E. Anderson, assistant to the president of the Terminal Railroad Association of St. Louis and subsidiary corporations, has been appointed also treasurer, succeeding **G. H. Steinberg**, whose appointment as acting federal treasurer of the Alton & Southern, the St. Louis & O'Fallon and other roads in the vicinity of St. Louis was announced in the *Railway Age* of August 30.

Roberts Walker, formerly president of the Chicago, Rock Island & Pacific, has been elected president of the Chicago



W. Kells

& Alton, succeeding **W. G. Bierd**, now federal manager. **Charles R. Bosse**, transfer agent in the office of the secretary in New York, has been elected assistant secretary and auditor. **James Williams** has been elected assistant treasurer, and **Charles A. Roberts** becomes corporate counsel. The headquarters of all these officers will be in New York.

J. B. Munson, vice-president and general manager of the Georgia, Southern & Florida, has been elected vice-president of the Southern Railway Company under its corporate organization, with headquarters at Cincinnati, Ohio. **C. B. Hayes**, controller of the Mobile & Ohio, has been elected vice-president of the Southern Railway Company, with headquarters at Mobile, Ala. **C. F. Steele** has been elected vice-president, with headquarters at New Orleans, La. **F. S. Wynn**, secretary, has been made secretary and treasurer of the corporate organization, with headquarters at New York. **W. S. Camp** has been appointed assistant secretary, with headquarters at Richmond, Va. Mr. Wynn has been appointed, also, secretary and assistant treasurer of the Chicago, Indianapolis & Louisville, with headquarters at New York, to succeed **J. A. Hilton**.

C. W. Bunn, general counsel of the Northern Pacific, has been elected vice-president and general counsel for the corporate organization, with headquarters at St. Paul, Minn. **Thomas Cooper**, assistant to the president, has been elected vice-president and land commissioner, with headquarters at St. Paul. **E. A. Gay**, secretary and assistant treasurer, has been elected secretary and treasurer, with headquarters at New York. **E. M. Willis**, assistant to the president of the New York, New Haven & Hartford, has been appointed assistant secretary and assistant treasurer of the Northern Pacific, with headquarters at New York. **F. W. Sweeney**, chief examiner of accounts of the Interstate Commerce Commission at Washington, has been appointed controller of the Northern Pacific, with headquarters at St. Paul. **P. B. Lacy** has been appointed cashier with the same headquarters.

Traffic

William Blackstock Lanigan, whose appointment as freight traffic manager of the Canadian Pacific, with headquarters at Montreal, Quebec, has already been announced in these columns was born on October 12, 1861, at Three Rivers, Quebec. He was educated at St. Joseph's College, Three Rivers, and at Stanstead College. In July, 1877, he began railway work with the Quebec, Montreal, Ottawa & Occidental, now a part of the Canadian Pacific. He subsequently served as telegraph operator on the Grand Trunk until September, 1884, and later served in the same capacity on the Canadian Pacific. He was then agent at various places, and from July, 1891, to December, 1900, was traveling freight agent at Toronto. He later served as assistant general freight agent at the same place, and subsequently became general freight agent, at Winnipeg, of the western division. In March, 1908, he was appointed assistant freight traffic manager of the western lines, which position he held until his recent appointment as freight traffic manager of all Canadian Pacific lines, as above noted.



W. B. Lanigan

Engineering and Rolling Stock

Anton Anderson, principal assistant engineer of the Chicago, Indianapolis & Louisville, has been appointed engineer for the corporation, with headquarters at Chicago.

L. M. Perkins, engineer maintenance of way of the Northern Pacific, lines west, with headquarters at Tacoma, Wash.,

has been appointed engineer for the corporation, with headquarters at St. Paul, Minn.

Herbert W. Cox, real estate agent of the Terminal Railroad Association of St. Louis and subsidiary corporations, has been appointed chief engineer and real estate officer, with headquarters at St. Louis, Mo.

Purchasing

W. F. H. Finke, tie and timber agent of the Southern Railway Company, has been appointed purchasing agent for the corporate organization, with headquarters at Richmond, Va.

Obituary

Payson Ripley, division superintendent of the Atchison, Topeka & Santa Fe, at Chanute, Kan., died in that city on September 10.

George A. Merrill, formerly superintendent of the Cedar Rapids division of the Chicago, Rock Island & Pacific, with headquarters at Cedar Rapids, Ia., died in that city on September 11, following a lingering illness of several months. In the early part of this year, Mr. Merrill was granted a leave of absence on account of illness, as was announced in the *Railway Age* of April 26. Mr. Merrill, who was 51 years old at the time of his death, began railroad work in 1881 as a messenger boy for the Chicago, Burlington & Quincy, at Burlington, Iowa.

John Howe Peyton, president of the Nashville, Chattanooga & St. Louis, at Nashville, Tenn., died on September 14, from the effects of a bullet wound through his temple.

Mr. Peyton was born on March 17, 1864, in Howard County, Mo. He was educated at Roanoke College, Salem, W. Va., and began railway work in June, 1881, as a rodman on the Richmond & Louisville. He subsequently served consecutively as a rodman on the Richmond & Danville, instrument man on the Tennessee & Midland and the Farmerville & Powhatan. In 1885 he was appointed resident engineer of the Lynchburg & Durham and in 1888 became resident engineer of the Georgia, Carolina & Northern, and from 1889 to 1891 was assistant to chief engineer of the Charleston, Clendennin & Sutton at Charleston, W. Va. From 1892 to 1898 he was engaged in general engineering and contracting work. He then entered the service of the United States Army; from 1899 to 1900 was on a commission sent to the Philippine Islands by the American Episcopal Church. From 1900 to 1901 he was resident engineer of the Chesapeake & Ohio, and then to 1902 was chief engineer of the Great Eastern. He then served as locating engineer of the Louisville & Nashville until 1903, when he was appointed engineer of construction of the Atlanta, Knoxville & Northern. From 1904 to 1909 he was principal locating engineer of the Louisville & Nashville. In 1909 he was appointed consulting engineer of the North Coast Railroad. The following year he became assistant to president of the Louisville & Nashville; two years later was appointed also chief engineer of construction of the same road, and since January, 1914, served as president of the Nashville, Chattanooga & St. Louis. In 1907, Mr. Peyton issued the first edition of the "American Transportation Problem," dealing with a comparison between transportation facilities afforded by inland waterways and modern railways. A second edition of the book was issued in 1909.



J. H. Peyton